NATIONAL CAR BUILDER

VOLUME XIV. NUMBER 12.

DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

$1.00 PER ANNUM. SINGLE NUMBERS, TEN CENTS.

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DECEMBER, 1883.

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To MASTER CAR-BUILDERS.

YOUR ATTENTION IS INVITED TO OUR LARGE AND VARIED STOCK OF

HARDWOOD LUMBER and VENEERS,

OUR OWN MANUFACTURE, EMBRACING CHOICE SHADED AND FIGURED

MAHOGANY

IN VENEERS, PANEL THICKNESSES, ETC.

Stock for Head Linings, etc., and all other desirable woods for CAR BUILDING purposes. Reasonable prices. Sample order solicited.

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186 to 200 Lewis Street, Fifth to Sixth Streets, E. R., New York.

CALVIN WELLS. AARON FRENCH.

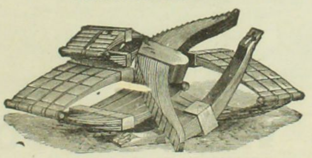
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A. FRENCH & CO.,

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CRUCIBLE CAST-STEEL SPRINGS,

WITH PATENT HOT COMPRESSED BANDS FOR RAILROAD CARS AND LOCOMOTIVES.

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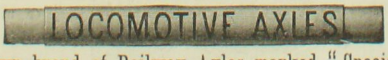
Office: TENTH ST., near PENN AVE.,

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We make a Specialty of our well-known brand of Railway Axles marked "Special" from new iron, guaranteed to be purely fibrous, and to stand the regulation drop test of the Penna. R. R. Company.

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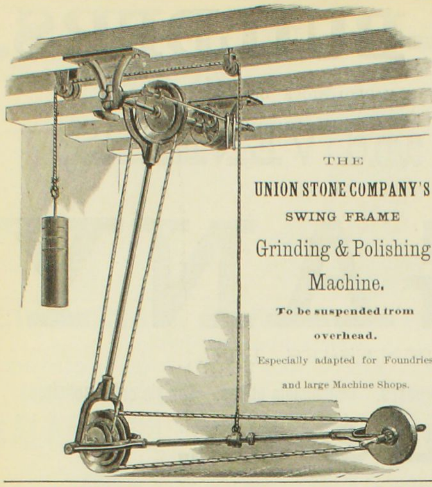
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PATENTEES AND MANUFACTURERS OF THE

UNION EMERY WHEEL.



THE UNION STONE COMPANY'S SWING FRAME Grinding & Polishing Machine.

To be suspended from overhead.

Especially adapted for Foundries and large Machine Shops.

Emery Wheel Machinery and Tools a Specialty.

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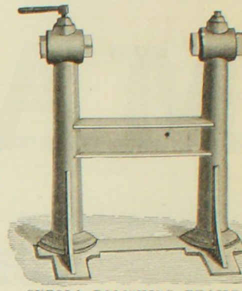
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The work is placed on the floor, bench or truck, the emery wheel is swung at will to conform to the straight or uneven surface. The wheel, being driven from a swinging countershaft, suspended by a telescopic rod with a universal joint, may be carried back and forth or swung at will; and the frame carrying the wheel being also suspended by the counterpoise weights jointed to a similar horizontal telescopic rod, makes it easy to twist the wheel over to any angle or give it any range of movement up or down. The operator can seize the handles on each side of the wheel, and carry it to any portion of the work desired. A boy can operate it. By substituting a circular "Scratch Brush" for the wheel, its value in the cleaning room of a foundry is apparent to all familiar with the old laborious hand process.

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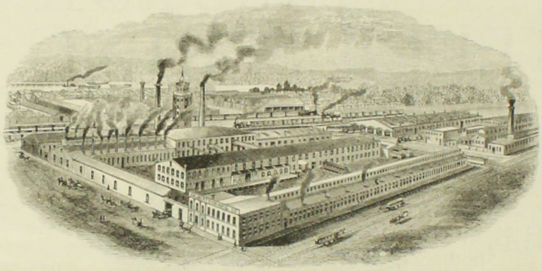
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GILBERT CAR MANUFACTURING COMPANY, TROY, N. Y.

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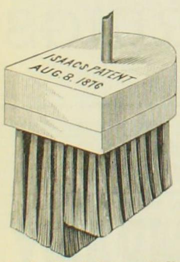


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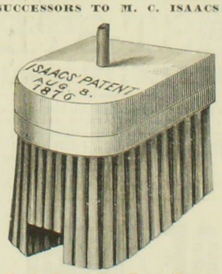
SUCCESSORS TO M. C. ISAACS & CO.,



No. 2.—Track Broom, Ordinary Size.

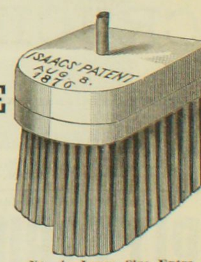
SOLE MANUFACTURERS OF

ISAACS' PATENT CELEBRATED



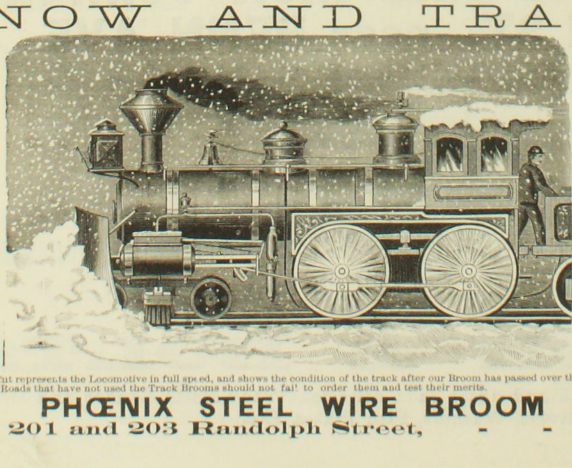
No. 3.—Large Size, Extra Heavy.

LOCOMOTIVE STEEL WIRE.



No. 4.—Large Size, Extra Heavy.

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This Cut represents the Locomotive in full speed, and shows the condition of the track after our Broom has passed over the rail. Any Roads that have not used the Track Brooms should not fail to order them and test their merits.

NOTICE.

Being sole owners of Letters Patented No. 180,717, granted M. C. ISAACS, Aug. 8, 1876, and we hereby caution all persons against infringing our exclusive rights by making, selling or using Railway Track Brooms like those covered by said Patent and illustrated on this page. All infringers will be prosecuted under the provisions of the Laws of the United States. See decision of Judges Clifford and Lowell, U. S. Circuit Court, Boston, Mass., Oct. 9, 1878.

All orders will receive prompt and careful attention by addressing

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THE GOWAN

CAR WHEEL CENTERING, BORING AND TRUING MACHINE,

MANUFACTURED AND SOLD EXCLUSIVELY BY THE

GOWAN CAR WHEEL TOOL COMPANY,

CHICAGO, Under { Letters Patent No. 285,123. Granted Sept. 18, 1883. / Letters Patent No. 287,762. Granted Oct. 30, 1883. } **ILLINOIS.**

Great Economy of Time, Labor, Tools, Power and Shop Space. The Mileage of Wheels Largely Increased and Flange Wear Greatly Decreased. The Only Machine Capable of Boring the Hub and Truing the Tread of a Car Wheel at One Operation.

It will True (boring simultaneously) a chilled iron wheel in less time and deprive its tread of less of its integrity than any other Truing Machine in existence.
It will simultaneously Bore and True a steel-tired wheel *with greater rapidity and cut away less of its tread* than any known tool, or system of tools, for such purpose.
It will Bore a Chilled-Iron or Steel-tired Wheel *without truing the tread*, or True the tread *without boring*; embodying in combination, or independently, all the requisites of a Boring Mill, Chilled Car Wheel Grinding Machine and Tire Lathe.

Master Mechanics and Master Car-Builders fully appreciate the following Facts:

That wheels can not be cast to a true circle, and though registering exactly the same circumference in the rough, invariably differ in size when relieved of their peripheral irregularities.
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It prepares the wheel for its axle; circumferential *admeasurement for pairing being made after wheels are bored and trued.*
It is a Simple, Compact and Reliable Machine, weighing 1,700 pounds, and occupying a floor space 10 × 8 feet.

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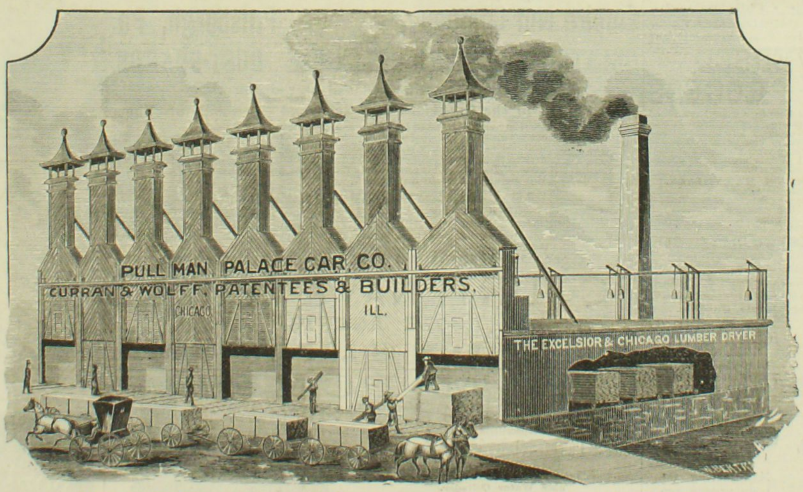
THE GOWAN CAR WHEEL TOOL COMPANY,

P. O. Drawer 176. CHICAGO, ILL.

THE EXCELSIOR AND CHICAGO LUMBER DRYER IS BUILT UNDER 16 PATENTS.

PAYS FOR ITSELF EVERY YEAR.

Storing Capacity, 40,000 Feet Inch Lumber.



DRYING 8,000 FEET PINE LUMBER EVERY 24 HOURS.

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B. & M. R. R. R. Co., Omaha, Neb	1	N. Y., O. & Western R. R. Co., Middletown, N. Y	1	Billmeyer & Small Co., Car-Builders, York, Pa	1
Norfolk & Western R. R. Co., Roanoke, Va	2	Louisville & Nashville R. R. Co., Louisville	2	Southern Car Co., Car-Builders, Knoxville, Tenn	1
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C., M. & St. Paul R. R. Co., Minneapolis, Minn	2	Barney & Smith Mfg. Co., Car-Builders, Dayton, O	4	Northern Pacific R. R., Brainerd, Minn	2
Memphis & Charleston R. R. Co., Memphis, Tenn	1	Jackson & Sharpe Co., Car-Builders, Wilmington, Del	2	R. & D. R. R., Richmond, Va	[illegible]

D. L. WELLS, President. W. B. SHULTE, Vice-President. H. L. NORTON, Sec. and Treas. F. E. WALKER, Engineer

WELLS & FRENCH CO., BRIDGE AND CAR-BUILDERS, CHICAGO, Nov. 13, 1880.

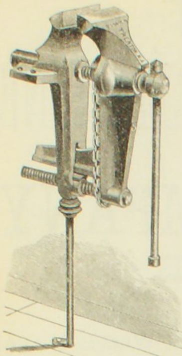
Messrs. Curran & Wolff, City:

GENTLEMEN: In reply to your favor inquiring as to the two Dry Kilns you built for us two years ago, we take pleasure in saying that they have given us entire satisfaction.
We are drying upward of ten thousand feet of inch boards in each Kiln every twenty-four hours, and the lumber comes out of the Kilns free from checks or damage of any kind resulting from the process.
We have concluded to build another of your Dry Kilns, finding them indispensable in our business, and we do not see how any one doing business requiring a large amount of lumber can get along economically without them.

Yours truly, THE WELLS & FRENCH CO.

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CURRAN & WOLFF, Proprietors and Builders, 39 and 41 FRANKLIN STREET, CHICAGO, ILL.



Our NO. 6 VISE opens 10 inches, with 8-inch Jaws; has solid forged screws 1¾-inch diameter, with 26-inch lever. We make 5 smaller sizes of same pattern. Special discounts to R. R. Companies and Car Companies on application.

THE
FISHER DOUBLE-SCREW VISE.
FULLY WARRANTED.

Stronger than any other Leg Vise,
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The Best Vise for R. R. Machine Shops and Car-Builders, and for all heavy work.

Accurate and Durable.

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THE EAGLE ANVIL WORKS,
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Bar Iron of great strength and uniform quality
Plate Iron unequaled for Fire Boxes.
Tyres, Axles, Chain Rivets, Angle and **T Iron** and **Forgings** of all descriptions.
STAY-BOLT IRON.
A full assortment of Bar Iron in store.
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STEEL RAIL BENDER

Steel Rail Benders, Track Drills, Track Jacks, Track Wrenches, Car Movers,
RAIL ROAD SUPPLIES.
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A GREAT IMPROVEMENT.
Ketcham's Positive Ferro-Prussiate, or

REVERSED BLUE PROCESS

paper gives dark blue lines on a white background on first impression, instead of white lines on blue background, as in the ordinary blue process paper, thus making the *altering* of lines or the *coloring* of any part of the drawing perfectly simple and easy.

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Solar Printing and Blue Process Paper.
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Railroad Printers and Stationers,
27 AND 29 NASSAU STREET, NEW YORK.

"Standard" Brake Shoe & Head.
Light, Strong, Simple, Durable.

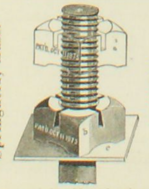


The Best and CHEAPEST IN USE.

Both Head and Shoe quickly adjustible, the latter also easily reversible when required. All the corresponding parts of each thoroughly interchangeable.

Write for circular and Prices.
STANDARD Manufacting Co.,
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Atwood Safety Nut Co.,
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J. W. LARABEE,
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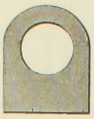
a, ATWOOD NUT on bolt without bearing on base slots open.
b, ATWOOD NUT turned to bearing e partially closing the slots and grasping the bolt.

MORSE TWIST DRILL AND MACHINE COMPANY



MANUFACTURES
Patent Twist Drills, Machine Bits for Wood, Bit Stock Drills, Reamers, Standard Gauges, Milling Cutter and Special Tools, for use in Railroad, Car and Locomotive Shops. **NEW BEDFORD, Mass.**

VULCANIZED FIBRE COMPANY,
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HARD & FLEXIBLE VULCANIZED FIBRE.
Flexible Vulcanized Fibre Dust Guards and Oil-Box Covers,
being absolutely unaffected by oil or heat, are far more durable and efficient than Leather, and much cheaper.



Office and Works; Wilmington, Del.

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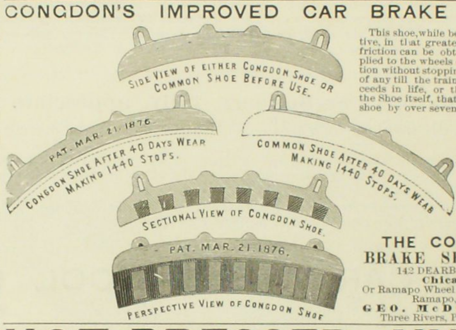
MOSCOW, 1872, Great Gold Medal. VIENNA, 1873, Progress Medal. ST. PETERSBURG, 1875, Gold Medal.

Safety, **LIGHTING** CINCINNATI, 1881, Gold Medal.
Economy,
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CONGDON'S IMPROVED CAR BRAKE SHOE.



This shoe, while being more effective, in that greater uniformity of friction can be obtained when applied to the wheels of a train in motion without stopping the revolution of any till the train is at rest, exceeds in life, or the durability of the Shoe itself, that of the cast iron shoe by over seventy-five per cent.

Its durability, together with cheapness and simplicity of construction, recommend it in preference to any other in use

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Or Ramapo Wheel & Foundry Co., Ramapo, N. Y.
GEO. McDOUGALL,
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HOT PRESSED NUTS.
Specifications Solicited.

Empire Nut Company, Pittsburgh, Pa.

GELATINIZED FIBRE FLEXIBLE DUST-GUARDS.
Superior to Leather or "Vulcanized Fibre."

Keep the Oil in the Car-Boxes and Sand and Dust out of Them



They are not affected by oil, grease or petroleum; do not cut the axles, as grit does not adhere to them; keep their shape well and will outwear several leather ones. Cut to order of any desired thickness or pattern. Send drawing or sample for estimate. This material is **absolutely free from grit, and will not become brittle and break.**

NOW IN USE ON MANY LEADING RAILROADS, GIVING GENERAL SATISFACTION.

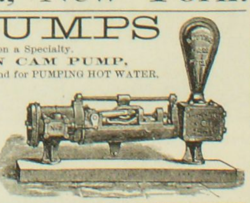
Master Car-Builders desiring to cut their own washers can be furnished with FLEXIBLE SHEET GOODS of any desired thickness; being uniform in quality and thickness, can be cut without waste.



BE SURE TO SEND FOR SAMPLES AND PRICES.

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STEAM PUMPS
For Boiler Feeding and Fire Protection a Specialty.
THE IMPROVED DAYTON CAM PUMP,
Designed and built especially for BOILER FEEDING and for PUMPING HOT WATER.



Steam Pumps and Hydraulic Machinery
For Railroad Purposes.
The Combined Pump and Boiler, with Removable Water Cylinder.
The MOST POWERFUL FIRE PUMPS ever made. Every machine warranted. Over **1,800** in use. Send for Descriptive Circulars.

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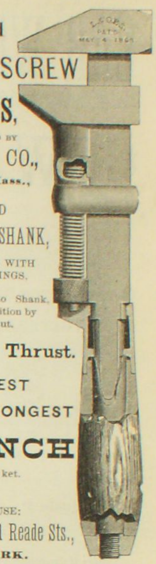
Manganese Bronze and Brass Castings,
STRONGEST AND BEST IN MARKET.

FOR
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ALSO,
Babbitt's Anti-Friction METAL,
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Improved
PATENT SCREW WRENCHES,
MANUFACTURED BY
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ENLARGED
BAR JAW AND SHANK,
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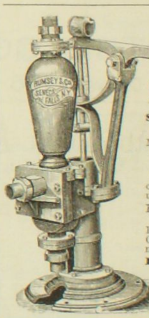
Iron Tube Fitted to Shank, held rigidly in position by handle and nut.

No Back Thrust.

THE HEAVIEST AND STRONGEST
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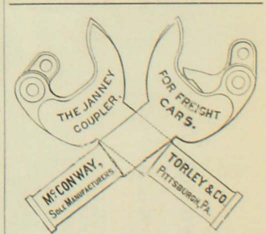
Manufacturers of over 800 Different Styles of
PUMPS.

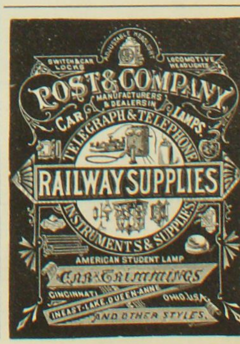
More than 50 railway companies have them in use. Also,

Fire Engines, Etc., Etc.

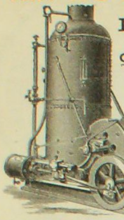
Ask for Rumsey's Pumps, and address for Catalogue and full information,

RUMSEY & CO.,
SENECA FALLS,
New York.





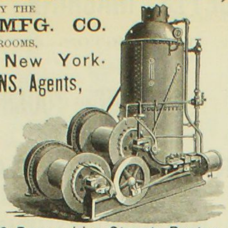
IMPROVED HOISTING ENGINES,



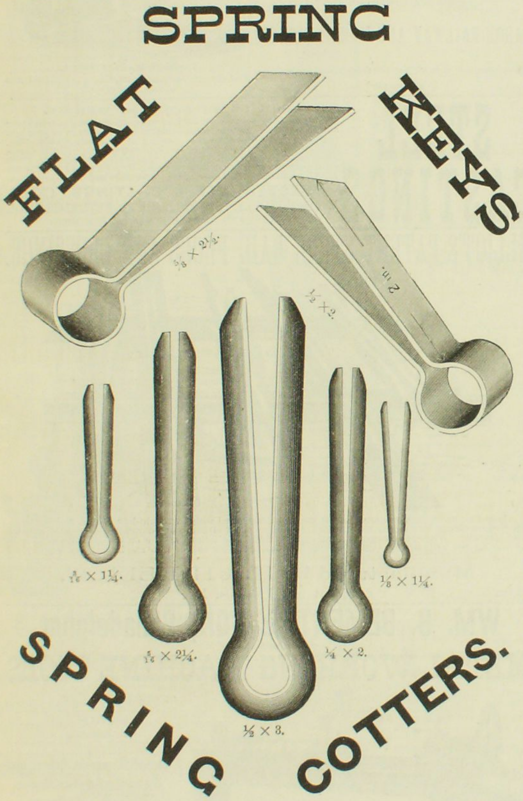
MANUFACTURED BY THE
LIDGERWOOD MFG. CO.
OFFICE AND SALESROOMS,
96 Liberty Street, New York.
G. S. WORMER & SONS, Agents,
Chicago, St. Louis and Detroit.

Over 150 different sizes and styles for ALL PURPOSES.

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MINING ENGINES,



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ALL SIZES OF SPRING COTTERS AND FLAT SPRING KEYS

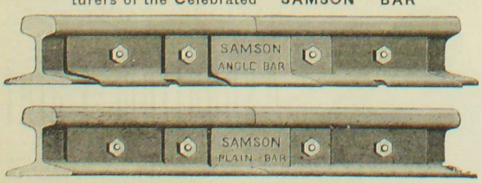
MANUFACTURED BY

The Whitman & Barnes Mfg. Co.,

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ST. CATHARINES, ONT.	BOSTON, MASS.

CHICAGO SPLICE BAR MILL.

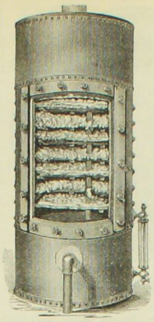
MORRIS SELLERS & CO., Sole Proprietors and Manufacturers of the Celebrated "SAMSON" BAR



And Every Variety of Plain and Angle Splice Bars.

OFFICE, 6 ASHLAND BLOCK.... ...... Mill, Chicago Ave. and the River...... .. CHICAGO.

STILWELL'S



PATENT LIME-EXTRACTING

HEATER AND FILTER

COMBINED,

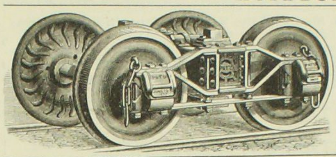
Is the only lime-extracting Heater that will prevent scale in steam boilers, removing all impurities from the water before it enters the boiler.
Thoroughly tested.

OVER 3,000 OF THEM IN DAILY USE.

This cut is a fac-simile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed, after the Heater had been running two weeks.

Illustrated Catalogues.

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DAYTON, OHIO.

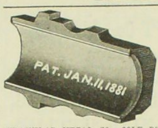


THE THIELSEN TRUCK CO.,

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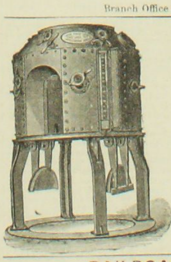
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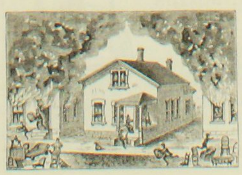
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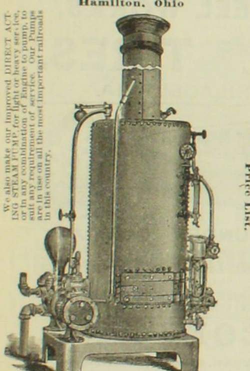
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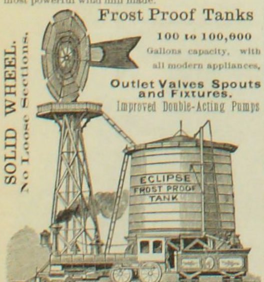
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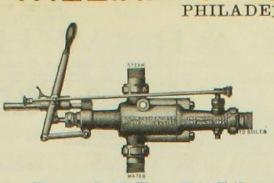


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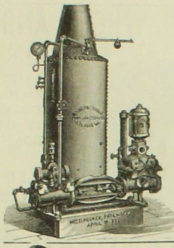
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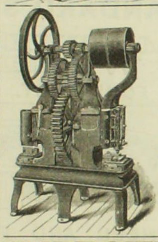
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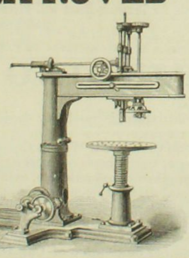
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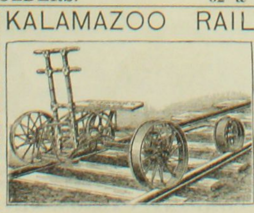
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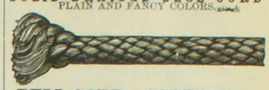
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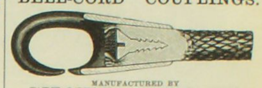
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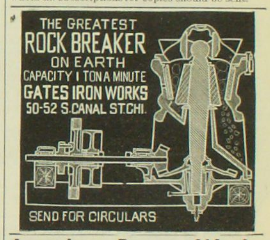
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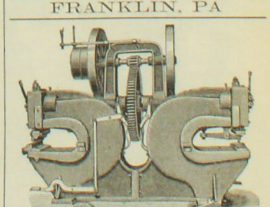
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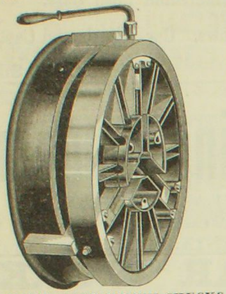
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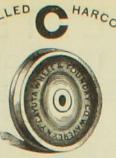
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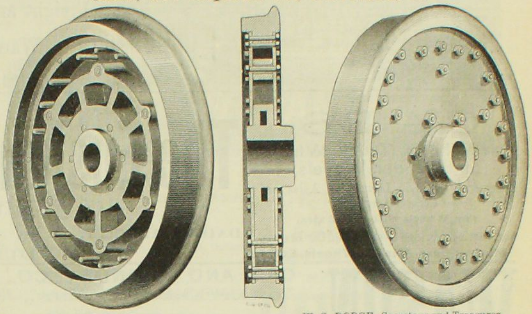
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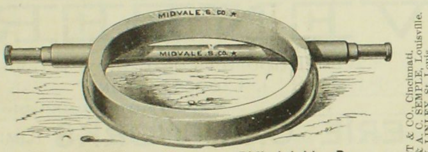
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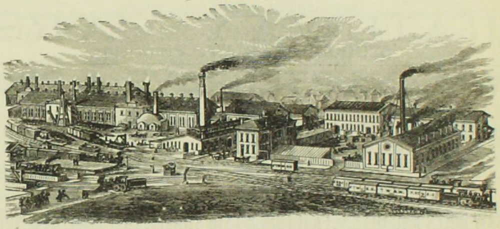


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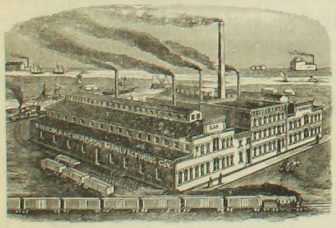
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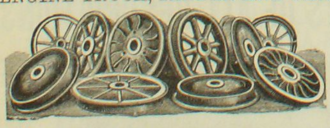


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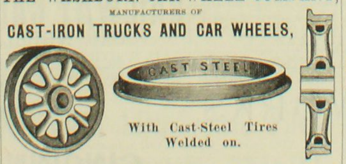
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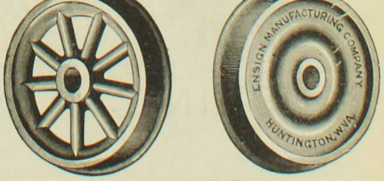
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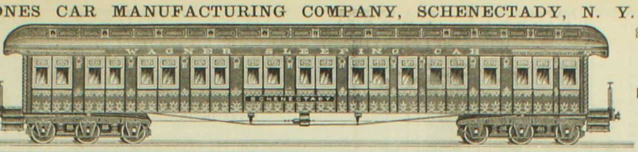


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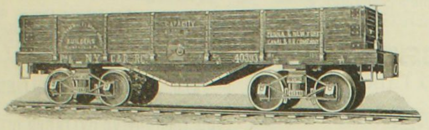
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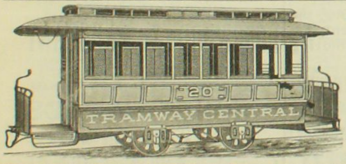
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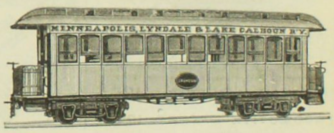
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Index to Advertisements in the National Car-Builder.

PAGE.

Air Brakes:
Eames Vacuum Air Brake Co., Watertown, N. Y. ... xxii
The American Brake Co., St. Louis, Mo ..(cover) 1
Westinghouse Air Brake Co., Pittsburgh, Pa. (cover) i

Axles:
Baugh Steam Forge Co., Detroit, Mich ... xi
Lang, W. Baily, New York and Boston ... iv
Midvale Steel Co., Philadelphia, Pa ... ix
New Albany Steam Forge, New Albany, Ind ... xxvi
Patent Shaft & Axletree Co., New York, N. Y. (cover) 4
Pittsburgh Forge & Iron Co., Pittsburgh, Pa ... i
Wilson, Walker & Co. (Limited), Pittsburgh, Pa. xx

Bell Cord and Couplings:
Wellington, Henry W., Boston, Mass ... vii

Boilers:
Babcock & Wilcox, New York, N. Y ... xvii

Boiler Testing Apparatus:
Rue Manufacturing Co., Philadelphia, Pa ... xvii

Boiler Plate:
Phillips, Nimick & Co., Pittsburgh, Pa ... xxvi
Shoenberger & Co., Pittsburgh, Pa ... xvii

Boiler Tubes:
Union Tube Works, New Castle, Pa ... ix

Bolts:
Buffalo Nut & Bolt Co., Buffalo, N. Y ... xv
Plumb, Burdict & Barnard, Buffalo, N.Y.(cover) 4
Smith, J. Noyes & Co., Cleveland, Ohio ... xxii

Bolt Cutters:
Howard Iron Works, Buffalo, N. Y ... xi

Brass and Copper Tubing:
Ansonia Brass & Copper Co., New York, N.Y. xvii
Besley, Chas. H. & Co., Chicago, Ill ... (cover) 4

Cars:
Billmeyer & Small Co., York, Pa ... x
Bradley Car Works, Worcester, Mass ... x
Brill, J. G. & Co., Philadelphia, Pa ... xi
Bucyrus Foundry & Mfg. Co., Bucyrus, O ... vi
Dauphin Car Works, Duphin, Pa ... x
Ensign Manufacturing Co., Huntington, W.Va. x
Erie Car Works (Limited), Erie, Pa ... x
Gilbert Car Mfg. Co., Troy, N. Y ... ii
Gill Car Manufacturing Co., Columbus, O ... xi
Harlan & Hollingsworth Co., Wilmington, Del. xi
Harrisburg Car Mfg. Co., Harrisburg, Pa ... x
Jones Car Manfg. Co., Schenectady, N. Y ... xi
Lafayette Car Works, Lafayette, Ind ... x
Lehigh Car, Wheel and Axle Works, Catasauqua, Pa ... xi
Lehigh Car Mfg. Co., Stemton, Pa ... xxvi
Litchfield Car and Machine Co., Litchfield, Ill. x
Harrison, Loring Boston, Mass ... (cover) 1
Michigan Car Co., Detroit, Mich ... xi
Muskegon Car & Engine Co., Muskegon, M ... x
North Carolina Car Co., Raleigh, N. C ... xi
N. W. Mfg. & Car Co., Stillwater, Minn ... xxvi
Pardee Car Works (limited), Watsontown, Pa x
Peninsular Car Works, Detroit, Mich ... xi
Pennock Bros., Minerva, Ohio ... x
Stephenson, The John Co. (Limited), New York, N. Y ... x
St. Charles Car Co., St. Charles, Mo ... (cover) i
U. S. Rolling Stock Co., New York, N. Y ... xi
Wason Car & Foundry Co., Chattanooga, Tenn. x
Wason Manufacturing Co., Springfield, Mass. x

Car Brake Shoes:
Congdon Brake Shoe Co., Chicago, Ill ... iv
Standard Manufacturing Co., Ft. Wayne, Ind. iv

Car Couplings:
Cowell Platform & Coupling Co., Cleveland, O. xviii
McConway, Torley & Co., Pittsburgh, Pa ... iv
Perry's Safety Car Coupling, Chicago, Ill ... xxii

Car Hardware:
Central Union Brass Co., St. Louis, Mo ... xvii
Post & Co., Cincinnati, O ... viii and xxvii

Car Heaters:
Bissell & Co., Pittsburgh, Penn ... xii
Lime-Extracting Heater & Filter, Dayton, O ... v
Spear, James, Philadelphia, Pa ... xii

Car Pushers:
Dwight, E. P., 407 Library st., Phila, Pa ... iv
Penfield Block Co., Lockport, N. Y ... (cover) 2

Car Roofing:
Taylor, N. & G. Co., Philadelphia, Pa ... (cover) 2

Car Seats:
Gardner & Co., New York, N. Y ... ix
Hale & Kilburn Mfg. Co., Phila., Pa ... xxvii
Mason, C. C., Altoona, Pa ... xxvi
Wakefield Rattan Co., Boston, Mass ... xxvi

Car Seat Springs:
Bushnell, E. L., Poughkeepsie, N. Y ... vi

Car Springs:
Andrews & Clooney, New York, N.Y. (cover) 3
Cliff & Righter Co., New York, N. Y ... (cover) 1
Diamond State Car Spring Works, Wilmington, Del ... (cover) 3
Detroit Car Spring Co., Detroit, Mich. (cover) 3
French, A. & Co., "Elliptic," Pittsburgh, Pa ... i
French Spiral Spring Co., Pittsburgh, Pa. (cover) 2
Jeffries, J. & Son, Philadelphia, Pa ... (cover) 3
National Car Spring Co., New York, N. Y. (cover 1) and page xx
Pickering, C. W. & Co., Philadelphia, Pa.(cover) 3
Pompton Steel & Iron Co., Pompton, N. J (cover) 3
U. S. Concave Spring Co., New York, N. Y. (cover) 3

Car Trucks:
Thielsen Truck Co., Chicago, Ill ... v

Car Wheels:
Allen Paper Car-Wheel Co., New York, N. Y ... viii
Bass Foundry & Machine Works, Ft. Wayne, Ind. ix
Barnum, Richardson & Co., Lime Rock, Ct ... ix
Bowler & Co., Cleveland, O ... viii
Cayuta Wheel & Foundry Co., Waverly, N. Y ... ix
Davenport, Fairbairn & Co., Erie, Pa ... viii
Detroit Car Wheel Co., Detroit, Mich ... xi
Ellis, W. R., New York & Boston ... (cover) 4
Ensign Manufacturing Co., Huntington, W.Va. x
Gill Car Manufacturing Co., Columbus, O. (cover) 1
Griffin Car Wheel Co., Detroit, Mich. (covers) 1 and 4
Griffin, Thomas F. & Sons, Buffalo, N. Y. (covers) 1 and 4
Griffin & Wells Foundry Co., Chi., Ill. (covers) 1 and 4
Jersey City Wheel, Foundry and Machine Works, Jersey City, N. J ... xxvi
Lehigh Car, Whl & Axle Wks, Catasauqua, Pa. xi
Lobdell Car-Wheel Co., Wilmington, Del ... viii
Maher & Brayton, Cleveland, O ... viii
Mowry Car Wheel Works, Cincinnati, O ... xxvii
Paige Car Wheel Co., Cleveland, Ohio ... ix
Ramapo Wheel & Foundry Co., Ramapo, N. Y. viii
Taylor Iron Works, High Bridge, N. J ... ix
Thacher & Co., Geo. H., Albany, N. Y ... xxvi
Union Foundry & Pullman Car Wheel Works, Chicago, Ill ... xxvi
Wason Manufacturing Co., Springfield, Mass ... x
Whitney, A. & Sons, Philadelphia, Pa ... viii

Car Window Balance:
Gardner, O. K., Pittsburgh, Pa ... xxvii

Car Window Fastener
Wolfrath's Window Lift and Fastener, New York, N. Y ... (cover) 1

Chains:
Union Chain Works, Pittsburgh, Pa ... xxvii

Chucks:
Horton, The E. & Son Co., Windsor Locks, Conn. ix

Chilled Car Wheel Grinding:
Chilled Car Wheel Grinding Co., Carson, Nev. viii
Gowan Car Wheel Tool Co., Chicago, Ill ... iii

Corrugated Sheet Iron:
Cincinnati Corrugating Co., Cincinnati, O. (cover) 2

Curled Hair and Glue:
Baeder, Adamson & Co., New York, N.Y. (cover) 4

Cupola:
Colliau Furnace Co., Detroit, Mich ... v

Draughtsman's Materials:
Ketcham, Chas. F. & Co., New York, N. Y ... iv
McAllister, W. Mitchell, Philadelphia, Pa. (cover) 3

Draw-Bars:
Pittsburgh Forge & Iron Co., Pittsburgh, Pa ... i
Safford, J. B., Buffalo, N. Y ... xxii
Wilson, Walker & Co., Pittsburgh, Pa. (limited) xx

Emery Wheels:
Diamond Emery Wheel and Machine Co., Providence, R. I ... (cover) 4
Union Stone Co., Boston, Mass ... ii

Engines:
Harris, Wm. A., Providence, R. I ... vii and xxii
Muskegon Car & Engine Co., Muskegon, Mich. x
Westinghouse Machine Co., Pittsburg, Pa. (cover) 1 and 2

Engraving:
Demarest, A., & Son, New York, N. Y ... xviii

Excavators:
Bucyrus Foundry & Mfg. Co., Bucyrus, O ... vi
Industrial Works, Bay City, Mich ... xxviii

Exhaust Fan:
Huyett & Smith Mfg. Co., Detroit, Mich ... xxvi

Fire-Box Steel:
Shoenberger & Co., Pittsburgh, Pa ... xvii

Flexible Shafts:
Stow Flexible Shaft Co., Limited, Phila., Pa. vi

Forges:
Keystone Portable Forge Co., Philadelphia, Pa. xii

"For Sale," Locomotives.
L. S. & M. S. R. R. Co., Cleveland, Ohio ... xxvii

Frogs & Crossings:
Elliot, H. & H., East St. Louis, Ill ... vi
Union Switch & Signal Co., Pittsburgh, Pa. (cover) 1

Hand-Car:
Jeffrey's R. R. Velocipede, Chicago, Ill ... xii
Kalamazoo R. R. Velocipede Co., Kalamazoo, Mich ... (cover) 2
Sheffield Velocipede, Peabody, H. W., & Co., Boston, Mass ... xxvii

Hoisting Engines and Boilers:
Lidgerwood Mfg. Co., New York, N. Y ... v

Hydraulic Jacks:
Dudgeon, R., New York, N. Y ... (cover) 4

Injectors:
The Hancock Inspirator Co., Boston, Mass ... xii
Rue Manufacturing Co., Philadelphia, Pa ... xvii
Sellers, Wm. & Co., Philadelphia, Pa ... v and xvii

Interlocking Switches:
Union Switch & Signal Co., Pittsburgh, Pa. (cov.) 1

Journal Bearings:
Ajax Metal Co., Philadelphia, Pa ... xv
American Bronze Works, Cleveland, Ohio ... vii
Central Union Brass Co., St. Louis, Mo. (cover) 1
Bostwick, Wm. S. & Co., Pittsburgh, Pa ... xxvi
Fitzsimmons, J., Pittsburgh, Pa ... iv
Fulton Iron & Engine Works, Detroit, Mich ... xviii
Granular Metal Co., Boston, Mass ... v
Hopkins, D. A., 113 Liberty st., New York, N. Y ... xx
Hooks Smelting Co., Philadelphia, Pa ... xxviii
Leroy Journal Bearing Co., New York ... xxii
Meneely, George R. & Co., W. Troy, N. Y ... xiv
Phosphor-Bronze Smelting Co. (Limited), Philadelphia, Pa ... xvii
Ryan, J. J. & Co., Chicago, Ill ... vii

Journal Box:
Ramapo Wheel & Foundry Co., Ramapo, N.Y. xxii

Journal Box Lids:
Hewitt Box Lid Cover Co., Chicago, Ill ... x

Leather:
Yandell, C. R. & Co., New York, N. Y. (cover) 1

Lighting Cars:
Pintsch Lighting Co., New York, N. Y ... iv

Lifting Jack:
De Weese, F. M., Chillicothe, O ... xxii

Linseed Oil:
Dean, J. A. & Co., New York, N. Y ... xx

Locomotives:
Baldwin Loco. Works, Philadelphia, Pa ... xvi
Brooks Loco. Works, Dunkirk, N. Y ... xvi
Dickson Manuf'g Co., Scranton, Penn ... xvi
Hinkley Locomotive Co., Boston, Mass ... xvi
Manchester Loco. Works, Manchester, N. H ... xvi
Pittsburgh Loco. & Car W'ks., Pittsburgh, Pa. xvii
Porter, H. K. & Co., Pittsburgh, Pa ... xvi
Rhode Island Loco. Wks., Providence, R. I ... xvi
Rogers Loco. & Mach. W'ks, Paterson, N. J ... xvi
Schenectady Locomotive Works, N. Y ... xvi

Locomotive Ash Pan:
Newth, W. H. D., Detroit, Mich ... xii

Lubricants:
Inland Oil Co., Cincinnati, O ... xx
Smith, E. A. & Co., Pittsburgh, Pa ... vi
Urquhart, John S., New York, N. Y ... xxviii

Lumber:
Millener, Joel H., Buffalo, N. Y ... xi
Smith, W. H. H. & Co., Toledo, Ohio ... vii
Vanderbilt & Hopkins, New York N. Y ... vii

Lumber Dryer:
Curran & Wolff, Chicago, Ill ... iii

Machinists Tools:
Bement, Wm. B. & Son, Philadelphia, Pa ... vi
Betts Machine Co., Wilmington, Del ... vi
Bickford, H., Cincinnati, Ohio ... (cover) 4
Brown & Sharp Mfg. Co., Providence, R. I ... vi
Flanders, L. B., Machine Works (Pedrick & Ayer), Philadelphia, Pa ... xvii
Forsaith, S. C. & Co., Manchester, N. H ... v
Hilles & Jones, Wilmington, Del ... vii
Machine Tool Works, Philadelphia, Pa ... xxii
Niles Tool Works, Hamilton, O ... (cover) 4
The Pratt & Whitney Co., Hartford, Conn ... xxviii
Sellers, Wm. & Co., Philadelphia, Pa ... vii
Stowe Flex. Shaft Co. (limited), Phila'phia, Pa vi

Mahogany, Fancy Woods & Veneers:
Albro Co., The E. D., Cincinnati, O ... xviii
Cole, I. I. & Son, New York, N. Y ... x
Graham, John R., New York, N. Y ... xii
Palmer, Parker & Co., Boston, Mass ... (cover) 2
Rayner, J., New York, N. Y ... xiv
Read, Geo. W. & Co., 180 Lewis st., New York, i
Singer & Goodrich Lumber Co., New York, N. Y ... xi
Uptegrove, Wm. E. & Bro., New York, N. Y ... x

Malleable Iron Castings:
Dayton Malleable Iron Co., Dayton, Ohio ... xv

Manual for Engineers:
Harris, Wm. A., Providence, R. I ... vii and xxiv

Mineral Wool:
U. S. Mineral Wool, New York, N. Y ... xiii

Nuts:
Empire Nut Co., Pittsburgh, Pa ... iv
Smith, J. Noyes, Cleveland, Ohio ... xxiv

Oils:
Galena Oil Works (Limited), Franklin, Pa ... vii
Inland Oil Co., Cincinnati, O ... xx
Signal Oil Works, Franklin, Pa ... vii
Stuart, D. A. & Co., Chicago, Ill ... xii

Oil-Box Covers:
Courtenay & Trull, New York, N. Y ... iv
Vulcanized Fibre Co., Wilmington, Del ... iv

Paints:
Billings, Taylor & Co., Cleveland, O ... xv
Cary Ogden & Parker, Chicago, Ill ... xiv
Chicago Fire Proof Paint Co., Chicago, Ill ... v
Devoe, F. W. & Co., New York, N. Y ... xiv
Iron Clad Paint Co., Cleveland, O ... (cover) 2
The Jewett White Lead Co., New York, N. Y ... xx
Lowe's Metallic Paint Co., Chattanooga, Tenn. xxvii
Masury, John W. & Son, New York, N. Y ... xv
National Paint Works, Williamsport, Pa ... vi

Patents:
Munn & Co. (Scientific American), New York, N. Y ... xxvi

Pig Iron:
Detroit Iron Furnace Co., Detroit, Mich ... xi

Platform and Couplings:
Cowell Platform Coupling Co., Cleveland, O ... iii

Portable Drills:
Stowe Flexible Shaft Co. (Limited), Phila., Pa. vi

Power Hammers:
Bradley & Co., Syracuse, N. Y ... xv
Forsaith, S. C. & Co., Manchester, N. H ... xii
Long & Allstatter Co., Hamilton, O ... vii

Power Punches, Shears and Hammers:
Colton, G. D. & Co., Galesburg, Ill ... vii
Hilles & Jones, Wilmington, Del ... xxiv
The Long & Allstatter Co., Hamilton, O ... vii

Pumps:
Gordon & Maxwell Mfg. Co., Hamilton, O ... vii
Hooker & Colville Steam Pump Co., St. Louis, Mo ... vii
McGowan, John H. Co., Cincinnati, O. (cover) 2
Rumsey & Co., Seneca Falls, N. Y ... iv
Smith, Vaile & Co., Dayton, O ... iv
Worthington, H. R., New York, N. Y. (cover) 2

Publications:
Builder and Woodworker, New York, N. Y ... xii

Railways:
C., C., C. & I. R. R ... xxvi

Railway Supplies:
Cochnower, Geo. A. & Co., Boston, Mass. (cover) 4
Ellis, W. R., New York and Boston ... (cover) 4
Post & Co., Cincinnati, Ohio ... iv

Railway Car and Locomotive Forgings:
Pittsburgh Forge & Iron Co., Pittsburgh, Pa ... i
Wilson, Walker & Co., Pittsburgh, Pa. (limited) xx

Railway Equipment:
Patten, Jas. T., New York, N. Y ... xv

Railway Fastenings:
Sellers, Morris & Co., Chicago, Ill ... v

Railway Signals:
Hall's R. R. Signal Co ... (cover) 1

Rock Breakers:
Gates Iron Works, Chicago, Ill ... vii

Rolling Floor:
Eureka Rolling Floor Co., New York, N. Y ... xxii

Roofing:
Cincinnati Corrugating Co., Cincinnati, O. (cover) 2
Taylor, N. & G. Co., Philadelphia, Pa ... (cover) 2

Safety-Nut:
Atwood Safety-Nut Co., Springfield, Mass ... iv
Deeds Nut Lock Co., Terre Haute, Ind ... xii

Safety Valves:
Ashton Valve Co., Boston, Mass ... xvi

Sand Paper and Emery Cloth:
Baeder, Adamson & Co., New York, N. Y. (cover) 4

Sash Balances—"Anderson's:"
Gardner, O. K., Pittsburgh, Pa ... xxii

Scrap Iron Dealers:
Purves, A. & Son, Philadelphia, Pa ... (cover) 2
Weill, M., Chicago, Ill ... (cover) 4

Sheet-Iron:
Thomson, A. A. & Co., New York, N. Y ... xvii
Wood, W. D. & Co., Pittsburgh, Pa ... xii

Sligo Stay-Bolt Iron:
Phillips, Nimick & Co., Pittsburgh, Pa ... xxvi

Snow-Plows:
Gunther, Geo. A., Brooklyn, N. Y ... xii

Spring Keys and Cotters:
Whitman & Barnes, Syracuse, N. Y ... v

Stand Pipes for Water Stations:
Poage, John N., Cincinnati, Ohio ... vi

Steel:
Chrome Steel Works, Brooklyn, N. Y. (cover) 1
Detroit Steel Works, Detroit, Mich ... (cover) 3
Jones, B. M. & Co. (Mushet), Boston, Mass ... xiv
Midvale Steel Co., Philadelphia, Pa ... ix
Standard Steel Works, Philadelphia, Pa ... viii

Steel Castings:
Buffalo Steel Foundry Co., Buffalo, N. Y ... xvii
Chester Steel Castings Co., Philadelphia, Pa ... vi
Eureka Cast-Steel Co., Philadelphia, Pa ... vii

Steel Tires:
Jones, B. M. & Co., Boston, Mass ... xiv
Midvale Steel Co., Philadelphia, Pa ... ix
Standard Steel Works, Philadelphia, Pa ... viii

Switch Stands:
Union Switch & Signal Co., Pittsburgh, Pa. (cover) 1

Switches:
Union Switch & Signal Co., Pittsburgh, Pa. (cover) 1

Tackle Blocks, Trucks and Baggage Barrows:
Penfield Block Co., Lockport, N. Y ... xii

Tank Valves:
Poage, John N., Cincinnati, Ohio ... vi

Taps and Dies:
The Pratt & Whitney Co., Hartford, Conn ... xxviii

Track Brooms:
Phœnix Steel Wire Broom and Brush Co., Chicago, Ill ... ii

Trucks:
Automatic Truck Works, Midland Park, N. J. xxvi

Twist Drills:
Cleveland Twist Drill Co., Cleveland, Ohio. (cover) 2
Morse Twist Drill and Machine Co., New Bedford Mass ... iv

Varnishes:
Babcock, John & Co., Boston, Mass ... xiv
Berry Brothers, Detroit, Mich ... xviii
Bigelow, Moses & Co., Newark, N. J ... xiv
Billings, Taylor & Co., Cleveland, O ... xv
Brooks, Clarence & Co., New York ... xv
Devoe, F. W. & Co., New York, N. Y ... xiv
King Varnish Co., Akron, O ... (cover) 1
Masury, John W. & Son, New York, N. Y ... xv
Parrott Varnish Co., Bridgeport, Conn. (cover) 4
Pratt & Lambert, New York, N. Y ... xi
Shipman & Bolen, Newark, N. J ... xv
Thresher & Co., Dayton, Ohio ... (cover) 1
Valentine & Co., New York, N. Y ... xiv

Ventilators for Water Closets:
Bell, E. Y., New York, N. Y ... xiii

Vise:
Eagle Anvil Works, Trenton, N. J ... iv

Waste (Cotton Seed Hulls):
National R'y Patent Waste Co., New York. xxii

Water Columns:
Poage, John N., Cincinnati, Ohio ... vi

Water Supply:
Eclipse Wind Engine Co., Beloit, Wis ... vii

Weather Strips:
Patent Metallic Weather Strip Co., New York, N. Y ... (cover) 1

White Lead:
The Jewett White Lead Co., New York, N. Y ... xx
Lewis, J. T. & Bros., Philadelphia, Pa ... vii

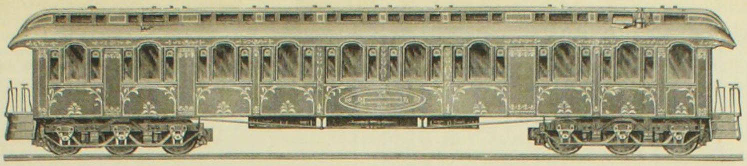
Wire Nails:
Cincinnati Wire Nail Co., Cincinnati, O ... x

Wrenches:
Coes, L. L. & Co., Worcester, Mass ... iv

Wood-Working Machinery:
Cordesman & Egan Co., Cincinnati, O ... xi
Fay, J. A. & Co., Cincinnati, O ... xvii
Forsaith, S. C. & Co., Manchester, N. H ... xxvi
Goodell & Waters, Philadelphia, Pa ... xxiv
Hoyt & Bros. Manuf'g Co., Aurora, Ill ... xxviii
Lee, H. A., Worcester, Mass ... xxvii
Rogers, C. B. & Co., Norwich, Conn ... xxviii
Witherby, Rugg & Richardson, Worcester, Mass ... (cover) 4
Woods, S. A., Mach. Co., New York, N. Y ... vi

Wrecking and Construction Cars:
Harrison, Loring ... (cover) 1

THE NATIONAL CAR-BUILDER.



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VOLUME XIV
NUMBER 12.

DECEMBER, 1883.

SINGLE NUMBERS, TEN CENTS,
$1.00 PER ANNUM.

Miscellaneous Items.

THE Indianapolis & Evansville straight line road has been completed.

IT is reported that Mr. J. D. Layng has tendered his resignation as General Superintendent of the Chicago & Northwestern Railway.

A. FRENCH & CO.'s new spring works, in Pittsburg, are about completed. They raised steam in their new engine on Nov. 10. They have had several of their japanning machines working for the last week or two.

THE Midland Railway Co., of England, has purchased all the Pullman drawing-room cars running on the lines from London to Liverpool, Manchester, Glasgow and Edinburg. The cars will be used as first-class carriages without extra charge.

THE shops of the Ohio & Mississippi road, at Vincennes, Ind., are building four locomotives with 18×24 cylinder and 68-inch driver wheels. The boilers are 50 inches in diameter and are intended to carry a steam pressure of 160 pounds.

THE shops of the Philadelphia & Reading Railroad Company, in Reading, are very busy, every track in the machine shop being filled with engines undergoing repair. There is no probability of a suspension in that department during the winter.

THE new bridge over Niagara River, built by the Michigan Central Railroad, is to be painted with Elliott's asphaltum paint, manufactured by the National Paint Works, at Williamsport, Pa. The painters have already commenced work on it, and it is said that the quantity of paint required for the job will be about 1,300 gallons.

THE new cantilever bridge at Niagara Falls will be formally opened about the 15th of December with imposing ceremonies. Invitations will be issued by the Michigan Central and New York Central roads to prominent railroad men, engineers and journalists throughout the country, and one of the large hotels will be opened for the entertainment of the guests. The first train to be run across the bridge will consist of 36 locomotives.

THE Pennsylvania Railroad Co. have been building at Altoona a number of new locomotives of various classes for service on the New York division of the road. Among those recently constructed are five (class K) fast passenger engines. The first engine of this class was the well-known "No. 10," built in 1881. Those built this year have 78-inch driving wheels, 18x24 in. cylinders, 201 tubes, a total heating surface of 1,085 square feet, a total wheel base of 22 ft. 7½ in., 59,000 lbs. on drivers, and weigh in working order 92,700 lbs.

THE Old Colony road reports the cost of new equipments for the year ending September 30, at $226,375. Large expenditures have also been made upon repairs. The present equipment consists of 120 engines of all clases, 276 passenger train cars, 918 box, 652 long platform, 1,205 coal, 38 cattle, 100 gravel, 31 caboose, 81 stone and 26 miscellaneous cars. Automatic Westinghouse brakes have been placed on all passenger cars, also safety heaters instead of stoves upon most of the passenger cars, and 19 of the box cars have air brakes.

THE Cowell Platform and Coupling Co., of Cleveland, O., have closed contracts for equipping the cars of 1,000 miles of railway with their coupling device. This device will couple with the Miller hook, and does away with the long side elliptic spring used with the hook, by applying a coil spring to the stirrup iron at about one fourth the cost of the elliptic. The Cowell supplemental platform adapts itself to all curves of the road by a rolling instead of a sliding lateral motion, thus saving the heavy blow in striking and leaving curves at high rates of speed; also saving the flanges of the wheels as well as the strain on the platforms, and affording great comfort to the passengers by doing away with the disagreeable jerking and jolting sensation usually experienced in the starting and stopping of trains.

THE center-support car truck invented by M. L. Finley, Master Mechanic of the Hot Springs (Ark.) Railroad, is thus described by the Hot Springs *Sentinel*: It is constructed the same as the ordinary car truck with the exception of the ball-and-socket side-bearing, instead of which a channeled casting is placed lengthwise on the spring bolster, which receives a roller fastened to the bottom of the car. Near each end of the bolster, a pair of small wheels lying on top of a friction roller, and held in place by a casting, roll on the upper side of two parallel wrought-iron bars made fast to the sills of the car. These support on either side the tipping strain. Between the pairs of friction wheels an upright carries a friction roller which comes in contact with the inner edges of the parallel bars whenever the truck leaves a right angle with the line of the car.

THE Detroit Car Wheel Company is turning out 250 wheels per day, and, in addition, all the miscellaneous castings used by the Michigan Car Company. Besides these its foundry turns out castings for the cars and locomotives of the railway companies in Detroit and its vicinity. In the wheels manufactured by this company the fact that the increasing weight of loads makes necessary a wheel of greater strength than in the past is recognized. It also claims that the average life of wheels hitherto has been too short. This company uses a large portion of Salisbury iron. This, with a proper percentage of Lake Superior charcoal iron, and 15 per cent. of old wheels of its own manufacture, makes, it is claimed, as good a car wheel as it is possible to manufacture. Out of a lot of 2,400 made by this concern and placed under 300 cars of a single railway company nine years ago, not over one per cent. have been reported as worn out up to November 1, of the present year. The Lake Superior charcoal iron used comes from mines controlled by this and its associated companies at Newberry, Mich., on the Detroit, Mackinac & Marquette Railway.—*Railway Age*.

WE printed in our October issue a statement copied from the Boston *Herald*, to the effect that Mr. Edwin A. Harris, of Fitchburg, Mass., had proposed to churches, Sunday schools and individuals to subscribe to a mission fund of $18,000, to be used for the construction of a "mission car" to promote evangelistic work among railway men. The *Pathfinder Railway Guide*, published in Boston, while commending the enterprise, suggests that equally good practical results could be attained by devoting the fund to the purchase of overcoats and gloves for brakemen, switchmen and crossing-tenders, to keep them warm while on duty in severe winter weather, and offers to take several blocks of the stock if the money can be applied in this way. It also proposes on its own account to anticipate Christmas by sending to any man in New England who fills one of the positions referred to, one of 200 pairs of "Pathfinder Gospel Gloves" on receiving a request for the same by mail. What particular kind or quality of gloves will answer to this peculiar designation is of course a matter of conjecture, but they should be made of good, serviceable material and have lamb's wool lining.

THE Rogers Locomotive Works, Paterson, N. J., are now turning out 30 engines per month and are just completing the one hundredth large passenger engine for the New York, West Shore & Buffalo road. These engines weigh 49 tons in working order and are splendid specimens of locomotive construction. They have 68-inch driving wheels, also steel axles. The trucks have 33-inch Allen paper wheels and the tenders 42-inch wheels of the same make. The capacity of the tanks is 3,000 gallons. Westinghouse automatic brakes are applied to driving and tender wheels. The works have been very much extended within the past few years and are fitted up with machinery and appliances of the most improved description. One shop, 110 × 110 ft., is devoted exclusively to the making of locomotive frames in order to insure the greatest perfection in the slotting, planing, drilling and fitting of this important part of the machine. The capacity of the hammer and erecting shops has also been materially increased, with a corresponding increase of facilities for rapid construction. All engines are built to gauges and templets and with a view to the utmost durability. Some of those built at these works 30 and 35 years ago are still in active service, and are making a fair amount of mileage. The products of the works within the last few years have not been exclusively for home consumption, a large number of engines having been built for export to Cuba, South and Central America, Australia, Mexico, Spain and Canada.

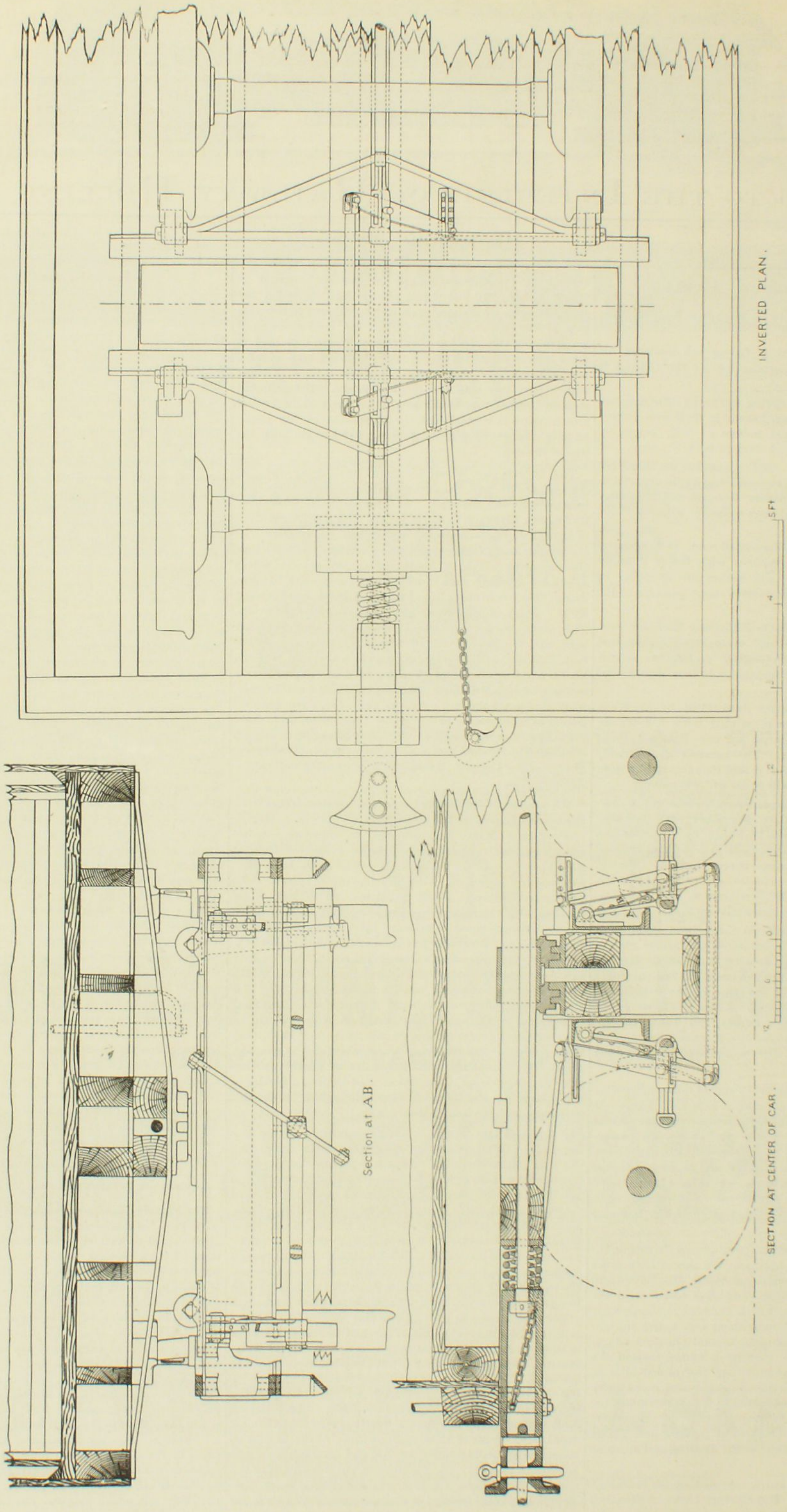
The Old-Time Conductor.

They may fit the modern railway car with the appointments and trappings of luxury and splendor; they may garb the officers of the train in showy uniforms, with gold-lace trimmings and silver badges, but they can not restore the conductor of the elder day. He is of the glories of the past. We shall not look upon his like again. He was of the time when railroads had a beginning and an ending, and represented communities, and he disappeared when cormorant corporations swallowed our pet enterprises as mere worms to spin "through lines" and "systems," established sweeping rules of economy, and tore from the locomotives the honored names of our local great men and their other brass ornaments. Nowadays the conductor is only some promoted brakeman or switch-tender—a mere train-starter and ticket-taker. As now trains are stopped by the engineer with a pressure of his finger on the air-brake valve lever, so the duties of the car officers consist in helping people and bundles on and off, taking fares and calling the stations. These duties are shared in common by the conductor and his one or two assistants, and there no longer exists the once wide difference between the master of the train and the sooty menial who twisted the brake-wheel, tended the stoves, lamps and windows, and played the parts of general utility. We repeat it, the great commander-in-chief has vanished. Ah! then the title of Conductor meant something. It was not a hollow name. The bearer was a man of honor and distinction. He swelled through the reeling aisles of the roaring train in princely pomp. When like a soldier leading a charge, he dashed through the smoky, fiery blasts of the platforms, sprang into the car and slammed the door after him with a flourish, brakemen, checkmen, newsboys and peanut peddlers gave way in awe. He was attired in the finest silks, wools and cottons of the latest fashionable cut. Upon his snowy shirt-front gleamed a large gem of purest ray serene. In the fingers of his left hand, so arranged as not to hide the great seal ring, was crimped a parcel of bills. If he bore a lantern it was as clear as a star, and his name could be seen cut in the glass. His eagle eye darted from side to side as he seized upon the fares. Now he smiled upon a person of affluence and influence and passed a pleasant word; now he frowned upon a common man; now he pierced to the heart with a glance some timid passenger who had already paid. When he sat down to rest it was in the "ladies' car"—that rolling palace of barbaric exclusiveness; within which no male man dared set his foot unless in servile attendance upon some member of the fair sex. The conductor's presence was felt from the engine-tender to the rear platform. The train started, stopped, backed, crawled, flew at the wave of his hand. Some admirers wondered how soon he would become sole proprietor of the road; other persons circulated stories that he owned large interests in all the city hotels, while others darkly hinted that it must take vast sums of the company's money to keep up such magnificence. But he has gone. *Sic transit gloria mundi.—Cincinnati Commercial.*

American Machinists and Technical Education.

The Philadelphia *Ledger* says that a person who recently advertised for machinists tested the proficiency of all who applied, and remarked, when summing up the qualifications of the men, that, though the American pleased him the most by their brightness, the foreign workmen were, without exception, better educated. The Americans had picked up their trades in the shops, but most of the foreigners, in addition to their shop practice, had attended technical schools. The latter could not only do good work with the tools, but they could lay it out, make sketches, and, if necessary, draw the designs to scale. The American shop-taught workmen, though quick to understand, inventive and skilled in the use of tools, were markedly deficient in drawing and such knowledge of mechanics as is required by the designer and draughtsman.

"Perhaps," says the *Scientific American*, "there is some truth in the above; but so long as American machinists continue to maintain their supremacy for superior ingenuity, excellence of work and greater rapidity in its execution, they can afford to spend less time on the minutiæ of the schools. In some cases, where ignorance is bliss, 'tis folly to be wise."



BRAKE GEAR FOR STANDARD CAR TRUCK.

Brake-Gear for the Standard Car-Truck.

At the Master Car-Builders' Convention in Chicago the following letter was submitted as an appendix to the report of the Committee on Standard Freight and Passenger Car-Trucks. The letter was written by Mr. George Westinghouse, Jr., to Mr. William Forsyth, a member of the Committee, in response to a request made by him, and was accompanied by a drawing, which is given herewith, showing a suitable brake-gear for the proposed standard freight truck:

PITTSBURGH, Pa., June 8, 1883.

DEAR SIR: As promised in my last letter to you, I will now make some observations upon the question that has been submitted to me.

Mr. Garey, of the New York Central & Hudson River, gave me a model box car of the latest construction, and I found upon examination that it was entirely suitable for the use of a substantial brake-gear. I will not pretend to go into the question as to whether this truck is all that could be desired, because that question is rather out of my line. I may observe, however, that I think the form of truck is a very excellent one, and one that, with slight modifications, could be accepted as a standard truck for the United States. These modifications can only be made when the size of the maximum wheel and the maximum axle is decided on.

I send you herewith a blue print showing the kind of brake-gear I have designed for this freight car. I have had in view in designing this the reduction of the parts to the smallest number possible, and their suspension or attachment to the truck in such a manner that there will be no likelihood of their getting down to derail the train. The brake-beam, as is shown by the tracing, is made of two pieces of bar iron the form of section of which is a little more than half a circle, and they are welded at the ends. Before welding, a cast malleable center-bearing for carrying the lever is slipped over the two ends and shrunk in its place. Instead of suspending the brake apparatus by a hanger, one end of which is attached to the frame and the other to the brake-shoe, I have prepared a hanger fixed to the brake-beam so that it is practically rigid. The upper end of this hanger swings in a bracket which should be firmly riveted to the truck frame. The bolt through this hanger I have shown 1¼ in. in diameter, the bearing is also 1¼ in. long. This pin should be a good fit and perhaps could be case-hardened. The brake-shoe instead of having a hanger slips over the end of the brake-beam. A split pin on the outside of the shoe firmly secures it in its place. The hanger has a spring on it with a pin at the lower end which slips into a lug in the brake shoe, and thus holds the brake-shoe in the proper position. When the brakes are applied, this spring yields and the shoe accommodates itself to the curve of the wheel. You will notice that the shoe has a greater amount of metal to wear at the bottom than at the top. I have adopted this form so that the spring which holds it back will, when the shoe is nearly worn out, not have an excessive amount of work to do. Two brake-levers are used for each truck, in order that each wheel may be subject to exactly the same pressure. The whole of the brake-gear is about 6 in. above the rail, and being suspended from the truck frame, it can never come nearer to the rail than it is when first adjusted. I am having the model car, to which I have referred, fitted with a brake-gear made to the same scale, and expect to have it in Chicago at the time of your convention so that you can inspect the apparatus itself. The time that I have had has not permitted me to verify all the details of this apparatus. However, I have confined myself to forms with which I am familiar; for instance, the brake-beam with round ends. This I have been using very largely on European railways, and that form of brake is almost universally used. The brake-shoe is a solid one not made in pieces, and it is more easily replaced than any other form that I have seen. I believe that the losing of a brake-shoe with this arrangement will not occur once where it now occurs a hundred times. The brake-beam and the hanger being practically one piece, the weight of the brake-gear is utilized in releasing the brakes. The truck frame, you will see, is utilized as a stop for the brakes when they are off. The arrangement of brake-rods and levers to connect the brakes of two trucks is a matter that I have not fully determined on. There are so many forms of brakes, however, that there will be no difficulty in easily deciding upon a suitable arrangement.

I have chosen brakes between the wheels for two reasons: First, because it is the most convenient place to attach brake-gear; secondly, because the falling action of the brake hangers when the brake is attached to the outside of the wheels has a tendency to tip the truck, while the tendency is in a favorable direction when the brake-shoes are suspended between the wheels. The pins for the brakes and the brake-levers, together with their bearings, I have made much larger than is now the practice, not because pins of the present size would not answer so far as strength is concerned, but because they are so rapidly worn if they are small. When the brakes are suspended to the car-bodies, as is the practice on many roads, the loading of the car tends to release the brakes, and the movement of the car up and down on the springs necessarily causes an unequal brake force to be exerted. For these reasons I think it will be agreed by all that one of the first points in the application of the brake is to suspend it to the truck frame, and not to any portion of the car or truck that moves up and down with the car; the second point will be to make it so substantially that there will be no fear of breakage from any strain that can be brought upon it, and so that the apparatus can not get down under the wheels. If the first proposition is true then some form of truck ought to be adopted similar to that shown in this drawing. Transoms made of channel iron I think are preferable to those made of wood. It is true they cost more, but they would materially assist in making a reasonably stiff truck frame and would admit of the attachment of a good brake-gear. I would recommend, however, in deciding upon the standard truck, the adoption of a larger wheel than the standard 33 in. A wheel 3 ft. in diameter could probably be used, in which case centers would have to be at least 3 in. farther apart than they are shown by the engravings.

In regard to the size of the axle and axle-box, this is a matter which can only be settled by experiment. I have a strong conviction that a journal 5 in. by 9 in. or 10 in. in length would prove in the end the most desirable. The pressure per square inch on the brasses would be reduced a sufficient amount to insure a much more perfect lubrication than railway people are now accustomed to, where the journals are so small compared with the weight that must be carried. The representatives of the Pennsylvania Railroad may be able to give you information on this point, for it was arranged recently, while I was in Altoona, that they would make some experiments with journals of the dimensions above given. As to whether the swing-beam truck is desirable or not I am not able to say from my experience, but I am inclined to think a considerable advantage is to be gained by its use. If a swing truck is desirable then there is all the more reason for not attaching the brakes to the bolster or car.

I do not pretend to have written you more than a letter on this subject. To prepare a report such as ought to be submitted to the Master Car-Builders for their acceptance, will require the attention of those who are directly interested in every detail of the car. I trust the observations I have made may prove of service to you, and if you have any questions to ask relating to this subject, I will answer them to the best of my ability.

Will you be kind enough to lay this letter and the drawings before the other members of the Committee on Car Trucks and Brakes? GEO. WESTINGHOUSE, JR.

A Lively Place.

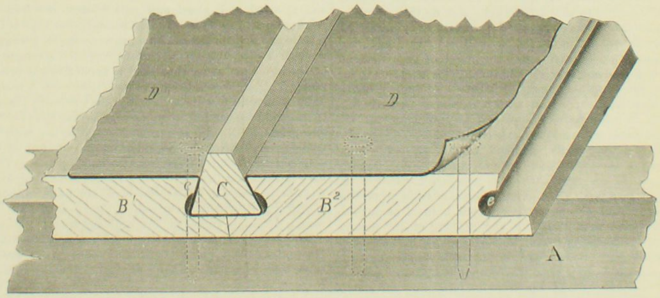
"Yes, this is a pretty lively place, I admit," said the station agent of the Pennsylvania Railroad at Elizabeth, N. J., to a reporter, as the Pacific Express went thundering by. "Take such a spot as this, where two roads, like the Jersey Central and the Pennsylvania, cross each other, and things can't be very sleepy. How many trains pass here in twenty-four hours? Well, on ordinary days we have about 380, but there have been times when the number has reached 400. There are express trains, way freights, through freights, excursion trains and coal trains rushing by at all hours of the day and night. That flagman, out there, has no 'soft thing.' It would be a great convenience to him if he was cross-eyed, for he has to look in four directions at once in order to keep out of the way of the trains. He can't do, as I've known them to do at some junctions—attend dog fights, or go round the corner for a drink. He must be right there every moment while on duty, or lose his position. Not only are the lives of the passengers in his hands, but also the lives of hundreds of people who are obliged to cross the track in passing from one part of the city to another."

Freight Car Roof.

The engraving illustrates a new style of freight car roof, of which Mr. A. P. Le Gros, the foreman painter of the Louisville, Cincinnati & Lexington R. R. shops, at Louisville, Ky., is the inventor. The construction is such as to render the roof impervious to water as mineral paint, canvas and boards can make it, and at the same time to be light in weight and durable.

A is a piece of the roof frame on which the roof is to be placed. B^1 and B^2 are roofing boards 1¼ inch in thickness, dressed on both sides, and with rabbeted half round groove edges. *C* is a strip of wood, keystone in shape, placed in the space between the two boards as shown. *D D* represents the canvas covering. The process of laying the roof is as follows:

Begin at B^1 on corner of car, nail board with four good wire nails, then paint the board heavily with thick mineral paint and pure boiled oil. The canvas should be rolled on a stick of suitable width, and then painted on both sides as it is unrolled and needed in laying down. The grooves *e e* must be well filled with the paint before the painted canvas is let into the rabbeted space.



Then paint the keystone stick and place it in position by laying it in the rabbet over the canvas. Then throw back the rolled canvas over keystone and bring roof-board B^2 into position (after being painted) against keystone, and then proceed as before. The grooves on each side, and the space under keystone, should be well filled with the paint, which, being covered and confined, will remain soft and pliant. The gable under the running-board is well secured by painted canvas, making throughout a perfectly tight roof.

The utility of this kind of roofing is being tested on some of the cars of the Cincinnati, New Orleans & Texas Pacific road. There can be no doubt that a roof of this kind is a tight one at the start. How long it will remain so after being put in service must be determined by use, and it is a question, as it seems to us, as to how long the keystone sticks will keep their places and keep the joints tight. Holes will be punched or worn in the canvas between the joints, but these will not necessarily cause leaks so long as the water can not get under the keystone sticks and through the joints of the boards.

The Demand for Oak Timber.

Ten years ago it would hardly have been admitted by dealers who handled Michigan and Indiana oak that in a decade there would be such a thinning out of the "monarchs" of the forest that a scarcity would be felt. Oak was in too great abundance in some sections of those States to suit the fancy of the owners of the land upon which it grew. Much of it was cut simply to get it out of the way, and the owners of it thought they were fortunate if they could sell it to mill men who would cut it, and thus, themselves, be saved that trouble. There was less call for it then than now. As the building of railroads has increased, the demand for oak increased proportionately, until now the once great oak States, Michigan and Indiana, can not justly lay claim to being called such. Oak in those States has not boomed in price like walnut—it is not an excessive price that bars a supply—but heavy contractors are looking elsewhere for it for the very reason that they are obliged to. There is a large amount of Tennessee and Kentucky oak, upon which heavy freight rates are paid, distributed from the Chicago market, and the amount coming forward from those States will increase year by year.

Fashion has little to do with the use of oak. From the start it has demanded to be used, and it holds its place with a grip as strong as the wood itself. The two kinds of pine may jostle each other; whitewood may take the place of white pine; walnut may be crowded out by the other kinds of hard wood, and often by soft woods; in fact most of the woods, in their uses, are subject to the caprice of taste, but oak stands sturdily by and refuses to yield.

For cars, staves, agricultural implements, for a hundred and one things, in fact, it must be had. The discovery of forests of other woods does not affect its value. There has never yet been any material discovered or invented that will take its place, and we feel tolerably safe when we say there never will be. It is one of the few indispensable woods.

We doubt if to-day there is a market in the world that is not demanding good oak. Throughout the foreign countries the call is so large that it can not be filled. English car-builders are buying car sills on track in Canada, and their operations would be extended to the States if they could find responsible parties with whom to make contracts. The inspection is severe, and that stands in the way of the American manufacturer, for, as a rule, he does not like to be bound by specific specifications. He delights to take a go-as-you-please gait, and the result is that his lumber often is not up to the requirements of the purchaser. The exact methods of the white pine manufacturers of the Northwest he has not learned.

The oak of Arkansas, Mississippi, Tennessee and Kentucky will in large part, in the shape of timber and staves, find its way to southern ports, and thence to Europe. On the Mississippi River and its tributaries the stave business is picking up, and with cheap water transportation to New Orleans the business will not only be a large one, but it ought to be very profitable. On the same rivers the getting out of oak timber for the foreign market will become a large business, spurred on by Northern push and capital. Alabama, we believe, is yet destined to send a good deal of oak abroad. Some of the English dealers object to the oak of that State, but they must overcome some of their objections, for to get all the oak they want from Canada and Michigan is out of the question. There is certainly no tougher oak than grows in the South, and this quality is the one needed.

Red oak, a few years ago thought to be worthless, is no longer despised. Its value has become known, and the uses to which it will be put will increase. That the manufacture of it into staves for the West India market will grow into an important industry admits of little question. Taking every thing in consideration, the owner of oak stumpage ought not to feel that he has a very big elephant on his hands.—*Northwestern Lumberman.*

MR. FRANK RAUM has resigned his position as President of the Woodruff Sleeping Car Company.

Communications.

Roofs of Passenger Cars.

To the Editor of the National Car-Builder:

In considering the question whether the prevailing style of passenger car roofs is just what it should be, it is generally taken for granted by car-builders that the raised roof is a disadvantage, and that if we could have as much head room as we wish, it would be better to carry the posts up to the full height of the raised roof, and put the ventilators, roof windows, etc., over the ordinary windows inside of the car. This view I have heard repeatedly expressed by car-builders and others, and it is usually assented to as one of those things which no one wishes to dispute. I think, however, that there are two sides to the question, and believe that when my reasons are stated you will at least coincide with me in believing that it is not altogether a one-sided matter. In the first place, a properly built raised deck need not be as heavy as some builders think necessary. By abandoning the lower plate of the roof, and framing each carline continuous from plate to plate, and by the use of a sufficient number, say eight or nine iron carlines, properly proportioned and carefully bolted down, a light and strong roof is obtained which does not have the tendency to spread the walls of the car as is the case in the usual trussed roofs. The short rafters can be made ⅞ by 2 inches, and perhaps even less if care is taken in the selection of the timber. The flat central portion of this style of roof is only about 4 feet in width, and this can be made very light. The advantage of this form is that it gives (contrary, I know, to what people usually think) a strong roof, and it brings the weight of the upper window ventilators in toward the center of the car instead of outside on the car walls. Although I have never had a chance to compute the position of the center of gravity of a car built in this way, and compare it with the center of gravity of a car having a flat roof ventilating windows above the main windows in the proposed style, yet I firmly believe that the raised deck will have its center of gravity far below that of the other style. The significance of this is, that a car with a low center of gravity will sway very much less on curves, and will be generally steadier and more comfortable in riding. I am not prepared to admit that the flat form of roof will be stiffer or stronger than the raised roof as now built. This, no doubt, seems like doubting an axiom, but there seems to be a good reason for my belief. In order to be stiff, a roof having a spread of say 9 feet, must have a very considerable depth of carline. As at present built, the lower roof has a versed sine of say 30 inches, if it were continued clear across the car. And the monitor, in effect, makes the roof a deep arch. Now, to get the same stiffness in a flat roof, we should be obliged to use a carline approximating the depth of those used in freight cars, since the sine of the roof arch cannot probably be made more than 6 or 7 inches. I have only to refer to the strength necessary in a freight car roof in order to show that strength is not to be easily obtained simply by flattening the roofs.

W. N.

Express Cars and Train Robbers.

To the Editor of the National Car-Builder:

In former times the depredations of the mail robber were confined to the stage-coach, and as this primitive vehicle was superseded by the fast railway train, his nefarious occupation seemed for a time to be gone. But he must needs keep pace with the march of improvement, and so he has not been slow in turning his attention to the more desperate and lucrative business of train robbing, which is now carried on with a degree of audacity that equals in boldness of design and execution any of the bandit raids in semi-civilized communities. These robberies are not wholly confined to the sparsely settled regions of the great West, but are becoming unpleasantly frequent in the older and more populous portions of the country, the thirst for plunder being excited in proportion to the amount of treasure transported in most of our fast express and mail trains, to say nothing of the money, jewelry and other personal effects contained in the pockets of passengers. Sometimes the plan is to wreck the train by means of obstructions placed upon the track. Another way is to go through the train in force, and intimidate passengers, train men and express agents with threats and revolvers. But more frequently, however, the passengers are unmolested, and a dash is made for the express matter exclusively.

This state of things renders necessary some kind of express car that will be practically robber-proof, or a car constructed in such a way as to make the treasure contained in it as safe as if it were in a bank vault. The receptacle for money, bonds, etc., should be proof against wrecking and fire. The car, in fact, should be practically a safe on wheels, and so arranged that no one except those in special charge of it could gain access to the inside. The practice of allowing train men to pass through express cars the same as they do through other cars of the train is manifestly wrong. It enables the professional bandit to work his cards more successfully, and to obtain a vantage ground from which he can more easily command the situation and have things his own way. The first thing to guard against is to keep him from getting into the car; and in the next place, in case he does get in, to make it next to impossible for him to get at the plunder without compelling those in charge of it to aid him in so doing. This would obviously require a strong, capacious and heavy iron safe, with combination locks and other burglar-proof appliances; an inconvenient thing, perhaps, to haul over the roads, but it would certainly pay in the long run if it served to frustrate the designs of robbers and render money in transit more safe than it now is.

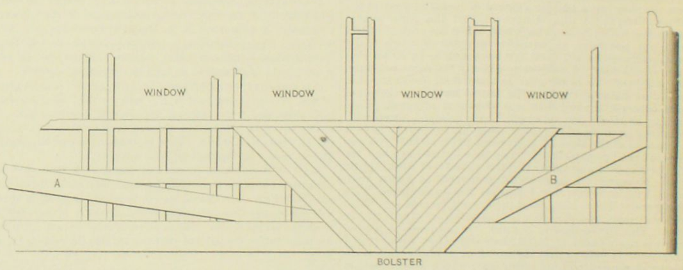
In the construction of cars of this class it would doubtless be advisable to dispense entirely with end doors and platforms—a precaution which has already been taken upon some routes. As the receiving and delivering of packages is done at the side doors, there is no very great necessity for end doors or platforms, except as a convenience for train men, which, under the circumstances, is, or should be, a secondary matter. Such cars should also present as few points as possible that require to be guarded in order to keep out intruders; consequently the fewer doors or openings of any kind the better. These are merely suggestions that occur to me in view of the necessity of greater protection against organized train wreckers and robbers. It may not be an easy matter to indicate just how to construct a car of this description, but it would seem that the thought and ingenuity expended in perfecting dining, hotel, refrigerator, stock and other cars could be well employed in devising improvements in the construction of express cars that would render them less attractive to raiders and robbers, and this without making them so many forts on wheels with regular armories and garrisons.

WM. S. HUNTINGTON.

Some Improved Methods in the Details of Passenger Car Construction.

During a recent visit to the works of the Jones Car Manufacturing Co., at Schenectady, the Superintendent, Mr. Manier, gave us some particulars in regard to the details of passenger car construction that are worthy of notice. These particulars may be already familiar to some of our readers, but to others they will doubtless be new.

It is the regular practice of the works, when the contracts permit, to put on passenger cars what may be termed double sheathing. The first sheathing is put on diagonally, and is of ½ inch stuff 2½ inches wide, tongued and grooved and glued and nailed upon the framing. Beginning at the bolsters, the stuff slants upward toward the middle and ends of the car body, thus acting as a series of braces. The accompanying sketch shows the arrangement of the inside or under sheathing as applied to a passenger coach, the part shown being just over the bolster, with its outer surface flush with the pillars of the belt-rail. This belt of sheathing is carried up only as far as the window-sills, and while it is very strong in itself, it forms with the frame a very stiff and substantial truss. On top of this diagonal sheathing are put the ordinary panels. These vary in thickness from ⅜ to ⅝ of an inch, according to the wish of parties for whom the cars are built, although practically it would seem that a thickness of ½ an inch would be amply sufficient for ordinary work.



The method of putting on the outside panels is peculiar. The under panels, and the back of those to go on, are covered with white lead, and the outside one is nailed in place. No more surface is leaded than can be covered at once. This plan insures a good bedding for the outer panel and also a good adhesion as the lead hardens. The side is not furred, however, until screws are put through both courses of paneling from the inside to hold both firmly together and to prevent the outer boards from warping. It is claimed by Mr. Manier that this way of covering a car, if properly done, will support a long and heavy car body without the aid of truss-rods and make a durable construction, and we are inclined to think the claim is a good one, judging from the looks of the work. It should be observed that this method of putting on panels makes the use of window-braces and rods unnecessary, the panels themselves taking the place of braces, and consequently reducing very considerably the cost of the car; for not only is the cost of putting in the rods and braces saved, but the material also. Wood battens are used in preference to iron, for the reason that they make a very neat finish and no screws are needed, at the risk of throwing out the putty and marring the finish.

Upon a number of cars in course of construction, narrow 2-inch sheathing is being put on over the diagonal sheathing. This makes a very pretty finish, and is for many classes of cars preferred to the ordinary wide panels. With either the wide panels or the narrow stuff placed vertically outside, the framing is considered amply strong to permit the inside truss-plank to be dispensed with, especially when the system of bracing shown at *A* and *B* is used.

The Northern Pacific Railway.

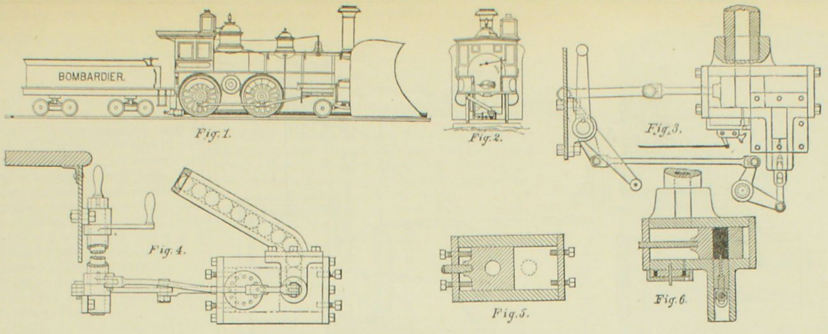
This company, after having completed its great trans-continental enterprise by a junction of the eastern and western divisions of the line, has suddenly entered upon a career of economy so extremely radical and sweeping as to indicate a serious lack of available resources just at a time when such resources were the most needed to place the road in a condition to handle its traffic with advantage and profit. The policy of retrenchment inaugurated by the Board of Directors is so vigorous that General Manager Haupt has been forced to resign his position rather than submit to restrictions that practically tied his hands and left him without means for the efficient running of the road. The reply of Vice-President Oakes accepting Gen. Haupt's resignation admits that the spasm of economy, although extremely radical, is none the less necessary.

Gen. Haupt, in an interview with a reporter in quest of information on the subject, said that his resignation was entirely due to the policy of radical retrenchment adopted by the Northern Pacific, which practically tied his hands and prevented the proper running of the road. At a meeting of the stockholders it was decided to cut off all possible expenses, and he had received instructions to cut down the force past the actually necessary number. The directors complained that the expenditures were too much in excess of the receipts. Gen. Haupt explained this by stating that the road turned over to the operating department by the construction department, was very incomplete. So bad was the condition of the road that through trains could not be run over it with any degree of safety or speed. The road was miserably ballasted, the cuts were narrow, no stations or water tanks were built, no side tracks were put in, in fact, nothing done to put the road in condition. This had to be done, and the cost of it had to be met by the operating department, supposedly out of surplus earnings, which did not exist, instead of by the construction department. This, of course, made the expenses very heavy. Another reason was that, practically, all the work of the year has to be done in June, July and August. After August it is difficult to get men to work on the road, as the harvest fields pay much better, and after harvest the wet weather begins, and it is impossible to do any work until the ground dries in the spring.

General Haupt further said the policy of retrenchment was carried on to an extent that would be detrimental to the interests of the road. The road-bed would become very bad by being neglected, especially considering the present condition; and as to the discharge of 460 men in the repair-shops at Brainerd, the result would be that the yards at that point would be crowded with disabled engines and dismantled freight-cars, which would greatly impair the efficiency of the road. Of course this would reduce the temporary expenses of the road to a large extent, but, instead of being a saving, there would be an actual loss, and next spring, when the necessary repairs had to be made, the expense would be more than heavy enough to counter-balance the saving now. Gen. Haupt stated that his official force had been cut down to a point which precluded efficient work. These were the reasons, in brief, which actuated him in tendering his resignation.

Vice-President Oakes was interviewed as to the succession of Gen. Haupt, and said there would be no successor, at any rate, not at present. While intimating that there might be some changes as to other officers of the road, Mr. Oakes said there would be none at present.

THE Supreme Court of Wisconsin has decided that a railroad is not required to have all its cars and locomotives constructed after the same pattern, but may lawfully construct them after different models, and may also make use of different appliances in operating its road; the law only requiring that such cars, locomotives and appliances shall be reasonably safe for the uses to which they are put.



TORPEDO SNOW-PLOW.

The cuts illustrate a somewhat novel apparatus invented by Mr. George A. Gunther, General Manager of the Brooklyn, Bath & Coney Island Railroad, for the removal of snow from railroad tracks.

The plow is made of plate iron or other suitable material, and is attached to the front of a locomotive. Underneath the locomotive, and extending from the front of the plow to the rear of the fire-box, is a barrel or gun, the breech of which is screwed into a breech-case of cast steel, as shown in Fig. 3. Inside this case is a breech block from which the cartridge is fired. Fig. 4 is a rear view of the breech-case, showing the magazine and loading and firing mechanism. Fig. 1 shows the general arrangement of the parts, and Fig. 2 is a rear view of the locomotive. The magazine is attached to the top of the breech-case and extends to the left side of the engine just to the rear of the rear driving wheel, pointing outward and upward at an angle of 30 degrees. It has a cover on the lid, to be secured after the magazine is filled. The levers for loading and firing are at the left side of the foot-board, and are to be operated by the fireman at the command of the engineer. The operation of the device is as follows:

When entering a drift, or a cut full of snow, the fireman takes hold of the two levers shown in Figs. 3 and 4, and pulling the right-hand lever to its furthest motion till the breech block strikes the adjusting screws (Fig. 5) and is in the position shown in Fig. 6. Then with the left hand the other lever is pulled outward, and forced back again. The outward motion pulls a plunger rearward from under the cartridge, which then drops in front of it, and on its being forced in again, pushes the cartridge into the breech block, Fig. 6. The plunger has a small hole through its center in which is a steel perforating spindle, the rear end of which has a hole through which the pin forming the connection to the operating lever is put. The rear end of the plunger is slotted, and the link connection and spindle are secured by the pin. The holes through the sides of the plunger are slotted longitudinally, to admit of the spindle being forced into the end of the cartridge, after the cartridge has been forced home, as in Fig. 6. By this means the end of the cartridge is perforated in its center. Upon the right-hand lever being now forced into its original position, the cartridge is put in a position axial with the gun-barrel and is ready to be fired. The firing is accomplished in the following simple manner: A small hole is drilled through the rear of the breech-case on a line central to the barrel. Attached to the rear of the breech-case is a disc of steel with a suitable number of holes concentric with the center and turning on a central pin as in all the revolving pistols, and provided with the usual revolving and self-cocking mechanism. The holes in the disc are of a proper size to receive blank cartridges for any of the small calibre pistols, and are loaded in the same manner. A rod, or lanyard, as may be most desirable, is attached to a lever corresponding to the trigger in a pistol, and upon pulling the rod or lanyard the attachment is cocked and fired in one motion. The pistol cartridge is fired into the perforation in the center of the rear end of the cartridge in the breech block, whereupon the explosion takes place and extends to the muzzle of the gun, which is under the accumulation of snow in front of the plow, breaking up and loosening it in such manner that it can be easily removed by the forward movement of the plow.

The device is not designed for the heavy snow-drifts of Canada and the Northwest, but is a light apparatus to be attached to any engine for the removal of lighter bodies of snow. For heavy work upon roads lying within the great "snow belt" a different and more ponderous construction is required, including trucks and a stationary engine to operate the automatic firing wheels. For further information address Geo. A. Gunther, New Utrecht, N. Y., or H. W. Hubbard, 23 Park Row, New York.

The New Railroad Time.

Some idea of the changes of running time of the different railroads, made by the adoption on the 18th November of the four standards of time, may be formed by the partial list given below, the letter "f" denoting that the clock is to be set ahead, and the letter "s" that it is to be set back:

Atchison, Topeka & Santa Fé, east of Dodge City, clocks only, 9 minutes, f.

Atchison, Topeka & Santa Fé, west of Dodge City, clocks and schedules, 51 minutes, s.

Baltimore & Ohio (west), both clocks and scedules, 28 minutes, s.

Boston, Hoosac Tunnel & Western, both clocks and schedules, 4 minutes, s.

Boston & Albany, clocks only, 16 minutes, s.

Canadian Pacific (Eastern division), clocks only, 6 minutes, s.

Central Vermont, both clocks and schedules, 12 minutes, s.

Chesapeake & Ohio, both clocks and schedules, 8 minutes, f.

Chicago & Alton, clocks only, 9 minutes, s.

Chicago & Grand Trunk, both clocks and schedules, 9 minutes, s.

Cleveland, Columbus, Cincinnati & Indianapolis, both clocks and schedules, 28 minutes, s.

Delaware & Hudson Canal Company, clocks only, 4 minutes, s.

Delaware, Lackawana & Western, both clocks and schedules, 4 minutes, s.

Fort Wayne, Cincinnati & Louisville, both clocks and schedules, 23 minutes, s.

Freehold & New York, both clocks and schedules, 4 minutes, s.

Hartford & Connecticut Western, clocks only, 4 minutes, s.

Lake Shore & Michigan Southern, both clocks and schedules, 28 minutes, s.

Lehigh Valley, clocks only, 1 minute, f.

Louisville & Nashville, clocks only, 18 minutes, s.

Missouri Pacific, clocks, schedules at St. Louis only, 8 minutes, s.

New York, Lake Erie & Western, clocks only, 4 minutes, s.

New York Central & Hudson River, clocks only, 4 minutes, s.

New York City & Northern, clocks only, 4 minutes, s.

New York & New England (east of Connecticut), both clocks and schedules, 14 minutes, s.

New York & New England (in Connecticut), both clocks and schedules, 4 minutes, s.

Pennsylvania (New York division), both clocks and schedules, 1 minute, f.

Pennsylvania (all divisions except New York), clocks only, 1 minute, f.

Philadelphia & Reading, both clocks and schedules, 1 minute, f.

Rome, Watertown & Ogdensburg, clocks only, 4 minutes, s.

The four standards of time will be known as the "Eastern Standard Time," "Central Standard Time," "Mountain Standard Time" and "Pacific Standard Time."

Uniformity of Signals.

At the recent meeting of the General Time Convention a report was made on the Uniformity of Signals by a committee appointed at the previous meeting, of which Mr. James McCrea, Manager of the St. Louis, Chicago & Pittsburgh road, was chairman.

The committee recommend that the following fundamental principles in reference to the use of signals should not be lost sight of:

First. Hand and lamp signals should be as near as possible like the motions which a person uninstructed would give to convey the same meaning.

Second. All signals should be so plain as to make it impossible to misunderstand or confuse them.

Third. As far as possible, no signal should be made to convey more than one meaning.

Fourth. Signals should be exhibited in the location which will make them the most plainly visible, and for the longest space of time to those for whose information they are displayed.

In accordance with these principles the committee recommned for adoption the following:

Hand and Lantern Signals.—Go Ahead—A motion up and down.

Stop—A motion crosswise with the track.

Back Up—A motion in a vertical circle.

Train Parted—A motion in a verticle circle at arm's length across the track, given continuously until answered by the engineer.

Bell-Cord Signals.—Start—train standing. One tap.

Stop—train running. Two taps.

Call in Flagman—train standing. Two taps.

Stop at Next Station—train running. Three taps.

Back Up—train standing. Three taps.

Reduce Speed—train running. Four taps.

Whistle Signals.—Starting—two long blasts.

Answer to conductor's, flagman's or other signals—two short blasts.

Calling in Flagman—four long blasts.

Protecting Rear of Train—five short blasts.

Approaching Stations, Crossings and Junctions—one long blast.

Train Parted—three blasts.

Stationary Fixed Signals.—Red is recommended as a signal for danger only, and to be used for no purpose but to bring the train to a full stop.

All signals of color, shape, or position, not held in the hand, but placed stationary, and by the side of the track, or affixed on a moving train, are included under this heading.

The principal use of such signals is to indicate either Danger! Stop! *(red)*; Caution! Proceed with care! *(Green)*; Safety! Track clear! *(white)*, or, if scheduled to do so, Stop for traffic! *(white and green)*.

The fixed signals on trains have other meanings and will be considered hereafter.

Each of the four first mentioned should be indicated by a signal of shape or color entirely distinct from all the others, and as colors are not readily distinguishable at a distance they should always, when practicable, be reinforced by shape or position.

Shapes of Signals.—A man standing by a track, desiring to stop a train, would naturally extend his arm across the track. The outlines would then be a perpendicular object with a horizontal arm protruding at right angles near its top. If he desired to give no signal, he would drop his hands, and his outline would be perpendicular.

The signal of *danger* and *safety* should conform to these outlines as near as possible, and be combined with red and white at night.

The signal that would naturally suggest itself as one *caution* would be a compromise between *danger* and *safety*, or a perpendicular object with an arm extending out and down at an angle of 45°, and combined with green at night.

In conformity with the fourth principle, all signals should be placed on the engineer's side of the track, as he approaches them, unless the land contours make them more easily seen by the engineer if placed on the other side.

Switch Targets should be placed on the engineer's side as he runs toward the point of the switch, as there is more danger when running in that direction than when through the switch.

In case separate signals for trains running in each direction are placed on the same standard, the arm on the right side as the signal is approached should ordinarily govern the movement.

Signals for trains in one direction only ordinarily project from the right hand side of the upright as you stand facing it in the direction of the target.

Danger Signals for Rear Protection should be displayed in an elevated position to the rear only, and never shown when the target is not on the main track.

The fixed signals on trains are used to indicate:

"Train following with the same rights as the train carrying the signals."

"Train following, which is irregular or extra."

"Train carrying the signals, itself irregular," rear of the train, and for rear protection.

We would recommend a *green* signal carried on the front of the engine to indicate "a train following with the same rights as the train carrying the signals"

A combined *green and white* signal carried on the front of an engine to indicate "a train following which is irregular."

A *white* signal carried on the front of an engine to indicate that the "train carrying the signal is itself irregular."

The rear oi everp train (passenger or freight) should be plainly marked to enable those interested to know that *all* of the train has passed.

We recommended that *green* signals be used for this purpose and they should be combined with red signals, so that one lamp can serve both purposes.

Torpedo Signals.—(1.) "Danger!" "Stop."

(2.) "Caution!" "Rnn carefully."

The signal for danger should consist of fewer detonations than the one for caution, so that if one cap fails to explode in a "caution" battery, the signal becomes one of danger.

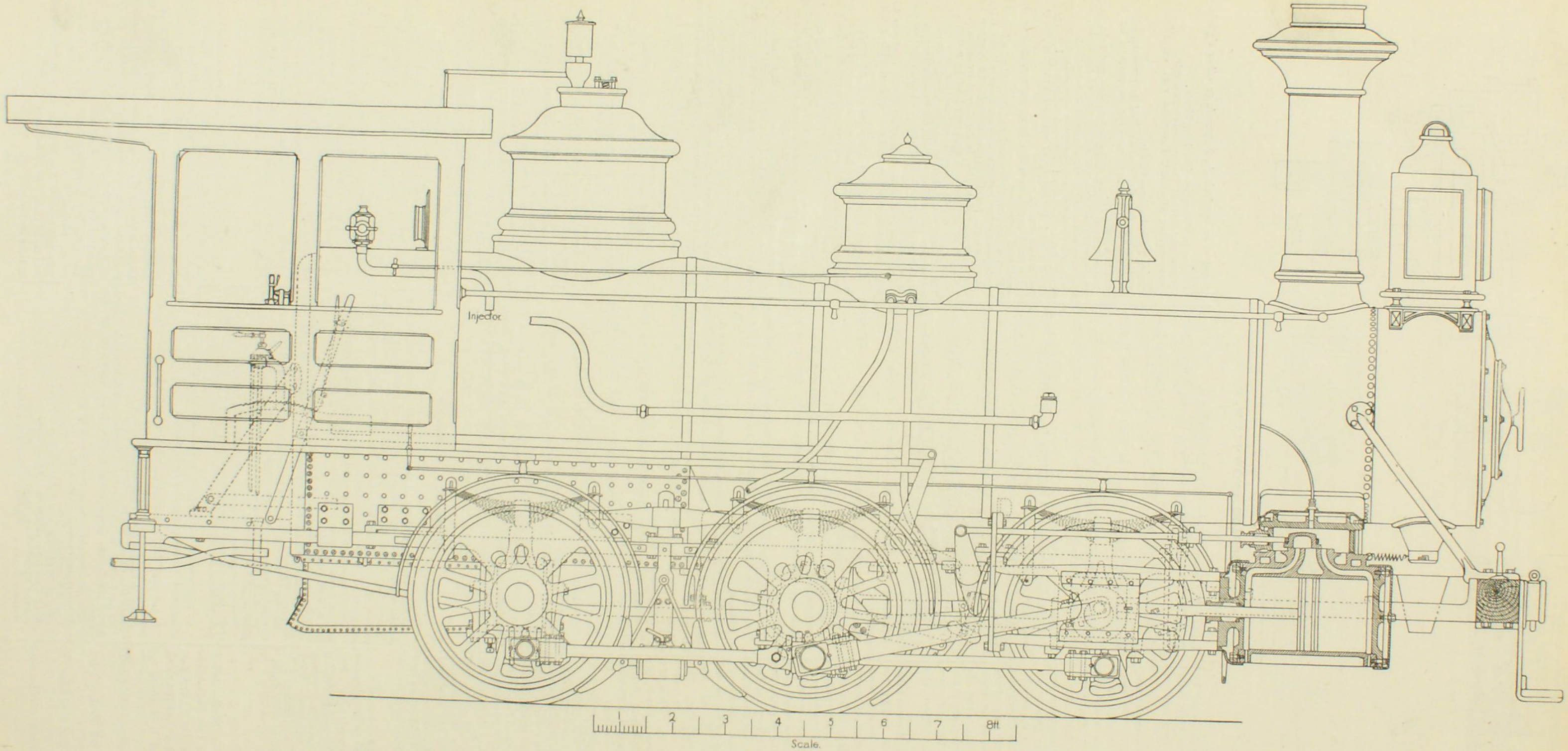
Use of Signals.—We recommend that a danger signal be used to indicate train orders.

Trains on sidings should clear and remove their signals of danger and display those of caution, otherwise trains passing on the main track will be stopped.

The rear of a train is the part that, when the train is proceeding in its authorized direction, will pass over a given point last, and markers should be displayed at that point, and no train should be reported or considered by until the markers are seen.

The recommendations of the committee will be submitted to the roads for objection or approval, and the result reported for consideration to the next meeting.

THE DIAMOND STATE CAR SPRING CO. was chartered in the State of Delaware Nov. 1, 1883, with a capital stock of $100,000. At the meeting of the stockholders the following officers were chosen: Nathan A. Davis, President; Lewis C. Gratz, Secretary and Treasurer, and Pusey A. Walton, Manager. The company have purchased the spring works of Messrs. Jas. T. Hayes & Co., in Wilmington, Del., with the intention of continuing the business and building up the trade by manufacturing not only all the various styles of springs now in use, but others represented by four new patents, which promise great success. The company have fine large offices at 411 and 413 Walnut street, Philadelphia. The works have been put in thorough repair, and a lot of new machine is being placed in them, which will make them one of the best equipped railway spring works in the country.



STANDARD SIX-WHEEL CONNECTED SWITCHING LOCOMOTIVE.—CINCINNATI, NEW ORLEANS & TEXAS PACIFIC RAILWAY.

Designed by James Meehan, General Master-Mechanic.

DIMENSIONS.

Item	Dimension
Size of cylinders	17 × 24 in.
Diameter of driving wheels	49 "
Diameter of driving axles	6½ "
Between center of forward and centre drivers	5 ft. 6 "
Between centers of middle and back drivers	5 " 6 "
Centre of main drivers to center of rocker-arm	3 ft. 0 in.
Center of rocker-arm to center of tumbling-shaft	16 "
Center of back driver to back end of tail piece	7 " 8¾ "
Center of forward driver to front of bunter beam	8 " 0 "
Length of main rod	5 " 6 "
Length of guides	4 " 3 "
Length of cylinder face to face	2 ft. 7½ in.
Between crosshead and piston head	3 " ½ "
Thickness of piston head	5 "
Diameter of piston rod	2¾ "
Between guides	14 "
Length of driver springs	33 "
No. of leaves 13, width 3½ in., thickness	1⅜ in.
Total wheel base	11 ft. 0 "

Five of these engines have been built at the company's shops at Ludlow, Ky., and several more are now under construction, all of which will be distributed over the line from Cincinnati to New Orleans. They are built from interchangeable templets so as to facilitate repairs.

Car-Builders' Club.

The regular monthly meeting of the club was held at the rooms, 113 Liberty street, New York, on Thursday evening, Nov. 15, the subject for discussion being "Tests of Material Used in the Construction of Railway Cars."

The proceedings were opened by the reading of a lengthy paper by Mr. Cocks on the subject of Testing Machines, in which the many obstacles in the way of making tests of material were pointed out. Men in charge of work did not wish to have their judgment questioned, and manufacturers generally were averse to the application of tests. But the buyers insisted on some systematic means of ascertaining the quality and strength of the material they were purchasing, and testing machines grew in favor. After this method of testing became a recognized practice, it was found that car wheels and other material used in construction became much more uniform in quality than formerly. The writer of the paper urged the necessity of a dependence upon tests rather than upon the representations of manufacturers as to the value of materials.

President Garey, in beginning the discussion, said that the car-builders at their meeting at Buffalo recommended the testing of car wheels by a good machine. Manufacturers asserted that tests were not necessary; but when the tests were persisted in it was found that the wheels were improved in quality. Manufacturers reaped benefit from systematic tests, for they enabled them to do work more uniformly.

Mr. Wilder, of the Erie road, doubted if tensile tests alone were satisfactory. Cold-short iron would stand a high tensile strain, yet for some purposes it was worthless. He asserted that were material under tension subjected to a side blow it would often break, although it would stand a much greater steady pull. Some years ago they were receiving bar iron which was not giving satisfactory results. He polished a cross section of several of the bars, then subjected them to an acid test, and they showed a distinct rail section. The iron had been rolled out of old rails. They subjected a certain number of all axles received to a drop test, and when they began this system manufacturers said they could not make axles to stand the severe test they used. He insisted on the practice being continued, and now he finds that axles seldom break under the test.

Mr. Garey considered that the introduction of the systematic tests had been the means of improving the quality of axles so that they could carry the prevailing heavy loads with safety. He thought the same practice would lead to still greater improvements. Two years ago the buffer springs he bought would not stand more than 8,000 pounds load. Owing to the influence of regular tests, he could now get springs of the same weight that would stand 22,000 pounds. He was of opinion that some railroad companies wanted to make their tests too scientific.

Mr. Packard, of the Baltimore & Ohio Railroad, said that they had established a laboratory where physical and chemical tests of material could be made, and it was in the hands of a man competent to attend to the business.

Mr. Forney thought that in the matter of testing material it was very important that capable men should be employed to look after the operations. If competent men were employed, men who were capable of recording exactly all the conditions under which tests were made, and the results obtained, they would be accumulating valuable scientific knowledge. Herbert Spencer defined science as accurate knowledge, and their work in the way of tests would be accepted as valuable contributions to science if the tests were properly made.

Car-Builders' Meeting at Buffalo.

At an informal meeting held at the Tifft House, Buffalo, Nov. 7, 1883, the following roads were represented:

Grand Trunk; New York Central & Hudson River; New York, Lake Erie & Western; Michigan Central; Lake Shore & Michigan Southern; Lehigh Valley; Great Western & Canada; New York, Chicago & St. Louis; Rochester & Pittsburg; and Pennsylvania & New York.

After considerable discussion upon various subjects relating to the condition of cars in interchange traffic, the following preamble and resolutions were unanimously adopted:

Whereas, There are in through service a number of freight cars which are in general bad condition and should be withdrawn from such service in order to facilitate the movement of freight and prevent delays and transferring loads at interchange points; and

Whereas, Much trouble arises from overloading cars, especially those with light axles and small journals, causing many hot boxes, with other detentions, which frequently occur from the transferring of a load from a 40,000 pounds capacity car into one of less capacity; and,

Whereas, Serious trouble frequently occurs from the improper distribution of the load on all classes of cars, therefore,

Resolved, That the sense of this meeting is that a request be made upon all roads maintaining inspectors at interchange points, to report cars in general bad condition, giving the number, line, owner or initial, and that the owner be notified with a request to withdraw such cars.

Resolved, That it is the sense of this meeting that the attention of the General Superintendents be called to the importance of these matters, with a request that they give such instructions to the proper officers as will remedy the evil complained of.

Resolved, That the Secretary of this meeting be instructed to notify the joint inspectors at Black Rock and East Buffalo, to notify each party for whom he inspects, of all cars presented for interchange which in his judgment are not fit for through service, giving the number, line, class and initials of each car.

Resolved, That the Secretary instruct the parties employing the joint inspectors at Black Rock and East Buffalo, on receipt of notice from such inspector of cars in general bad condition, to notify the owner with a request that they give the matter special attention.

The meeting was then adjourned to meet at the Tifft House, Buffalo, Dec. 12, at 10 o'clock A. M.

WM. MCWOOD, Chairman.
J. S. LENTZ, Secretary.

New England Railroad Club.

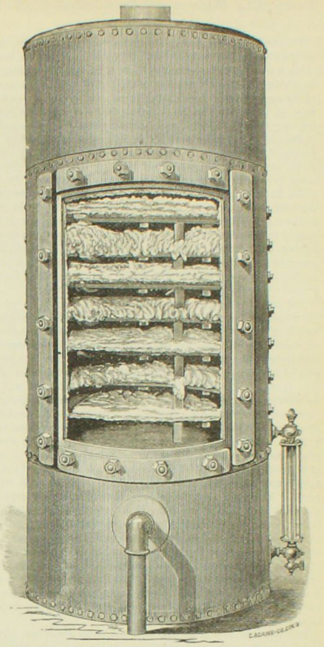
The regular monthly meeting was held at the club-rooms in Boston, on Wednesday evening, November 14. Mr. R. E. Jennings, of West Bergen, N. J., read a paper on the subject of steel, giving a history of the progress made in its manufacture, embracing the methods and details pertaining to the various classes of steel. Manganese in steel was an impurity, and Mr. Jennings said there was not a bar of Bessemer or open hearth spring steel in New England that contained less than from 60 to 90 of one per cent. of manganese, when there should not be on any account more than 35 of one per cent. In buying railroad supplies the companies should employ a chemist to analyze the different grades of material, and determine what proportions of carbon and manganese are best for rails, boiler-plate, springs, axles, etc., and also the properties that are the most desirable in iron, brass and anti-friction metals. This would save in expenditure for repairs several times the cost of employing such a person to do the analyzing. Rails should be carefully inspected by buyers before leaving the mill.

Some of the Causes of Unsatisfactory Results in the Painting of Railway Cars.

[Paper read at the Convention of Master Car Painters in Baltimore, by A. J. Bishop, Master Car Painter of the Cleveland, Columbus, Cincinnati & Indianapolis Railway.]

In opening this subject I wish to invite a free and open discussion on any of the points taken. The first thing that a railroad usually does is to build brick or stone machine and car shops, and then put up an old shed for a paint shop. Now, the material that is used in the machine and car shops is largely wood and iron, and the expansion and contraction is so little that really these materials could be used in almost any atmosphere. But when it comes to the painter, he is given a shop generally devoid of the three greatest requirements necessary to a perfect paint shop, which is light, heat and ventilation. The materials the painter has to deal with are very sensitive and are subject to atmospheric and other changes. Paint will not dry properly in a dark shop, and will dry unevenly in a damp shop. In cases where the tracks run lengthwise the shop, and there are windows on the sides and not skylight enough to give the same light between the cars, cracking will most surely occur on the dark side if the car is brought up in the same time, as the paint on the dark side wlll not be thoroughly dry. So I consider light one of the greatest essentials of a good paint shop. Heat is also a great factor in the drying of paint, and I consider steam-heating the safest method, with the coils of pipe running around the sides of the shop, as then a uniform temperature can be maintained. Where stoves are used you can never secure a uniform heat, and they frequently generate gas which will produce many deviltries both in paint and varnish. This, of course, occurs more frequently in a poorly ventilated shop. Hence good ventilation is also very important, and without it no perfect job can be produced, as it is not practical to ventilate by the windows. There is only one way, and that is to obtain ventilation through the roof. There should also be ventilation under the floors of the paint shop. Where the floors are solid there is a great amount of dampness, which is very injurious to paint and varnish. I can't help but feel that the want of proper light, heat and ventilation are the prime causes of much of the trouble experienced in the paint shop, and this conviction forces itself on me more strongly on account of what is demanded from the paint shop at the present time. I refer to the material shortening of the time now given to paint a car. While many parties still use boiled oil in car painting, I can not but think it is a great mistake, and believe it is the cause many times of the paint cracking and blistering. I deem boiled oil the correct thing for outside oil painting, but where a color is to be protected by varnish I think raw oil should be used, and very little of that, and if you desire to hasten its drying, use a good coach Japan. Referring to the causes of cracking, the simplest illustration is the mud-hole. The cracks in a mud-hole are caused by the portion underneath drying slower than the outside, hence the rule that the undercoats in painting should be made to dry quicker than the outer coats, and whenever this rule is violated cracking will surely occur. This applies to varnish as well as to color coats.

THE Lehigh Car Manufacturing Co., at Stemton, Pa., are building ten cars of improved construction for the transportation of horses. They are fitted up with stalls for 15 horses each, with conveniences for feeding and watering, and are virtually stables on wheels. They are being built for Mr. Isaac Dahlman, of New York, and are to be run on the New York, Lake Erie & Western road. The company are also building a second lot of 50 ore cars for the Uruguay Iron Co., San Diego, Cuba, and have recently built four cars for the transportation of theatrical scenery for the proprietors of two New York theaters.



Stillwell's Lime-Extracting Heater and Filter.

THIS apparatus is designed to prevent the formation of scale in steam boilers, by purifying the water from the scale-forming matter before it enters the boiler. This is accomplished by causing the water to enter the combined heater and filter at the top, and in its downward progress it is thoroughly boiled, setting free the incrusted matter and precipitating it upon a series of surfaces in the form of removable shelves with alternate openings, as shown. As the thin sheet of water passes over these shelves, all of which are very hot, it is met and acted upon in its downward course by an ascending current of steam which enters the lower part of the heater, separating and precipitating the foreign particles, this process beginning as soon as the water enters at the top. The deposit is heaviest on the upper shelf, and diminishes in quantity as the water descends. From the lower shelf the water passes through the filtering chamber, when it is ready for the boiler. The escape steam from the engine is used in supplying the heater, and is sufficient for the purification of a large quantity of water. The shelves can be easily taken out and cleaned. The water passes upward through the filtering chamber on its way to the discharge pipe. The door of the heater can be removed in a minute or two, na bolts, set-screws or keys being used in the fastening of it. The heater has a glass water-gauge and waste-cock, and can be operated by a common laborer. It is made in various shapes, but usually of an upright, cylindrical form, this being peculiarly adapted for muddy water, or water impregnated with iron, sulphur, etc. It is claimed that it effects a saving of 10 per cent. in fuel when soft water is used, and from 15 to 20 per cent. when hard or impure water is used; also obviating frequent blowing off and cleaning. They have been abundantly tested during the past ten years, and over 3,000 of them are in use. Manufactured by the Stillwell & Bierce Manufacturing Co., Dayton, Ohio.

THE Barney & Smith Manufacturing Co., Dayton, O., are preparing to build some box fright cars for the Hot Springs Railway, of Arkansas, a narrow gauge road 25 miles long. The cars are to be 36 ft. long and 8 ft. wide, and to have a carrying capacity of 50,000 lbs. Their extraordinary capacity, in connection with the fact that they are to run on a narrow gauge track, which we take to be either 3 ft. or 3 ft. 6 in., is accounted for by the circumstance that they are to have Finlay's center-supporting trucks under them, a brief notice of which we have already published. Mr. Finley informs us that a car with this truck has been running experimentally on the above named road for 8 months and has proved to be a complete success, although, an account of its short curves, it is about the worst road in the country for a triple-truck car to run on.

THE new McQueen Locomotive Works, at Schenectady, N. Y., are well under way, and are located near the shops of the Jones Car Mfg. Co., and a short distance from the New York Central and Delaware & Hudson Canal road tracks. The buildings are of brick, and comprise a machine and erecting shop, 300×122 feet, a blacksmith and boiler shop, 400×72 feet, and a foundry, 200×60 feet. The company has a capital of $300,000. Its officers are as follows: Ex-Senator Charles Stanford, President; Wm. McCann, Treasurer; Executive Committee, Walter McQueen, late of the Schenectady Locomotive Works, Walter Jones, of Jones Car Mfg. Co., and John McIncroe; Superintendent of Works, H. Watkeys, from the New York Central road.

Tie-Spotting Machine and Car—Central Pacific Railroad.

The drawings illustrate a Rail Tie-Spotting Machine in use on the Central Pacific Railroad. The car upon which the machine is carried and operated is 51 ft. 6 in. long over sills, and 9 ft. 2¼ in. high from bottom of sill to top of plate. At one end of the car is the engine and boiler-house, occupying a space lengthwise, of 17 ft. 2 in.; at the other end is the spotting machine occupying a space of 19 ft., and between these, in the central part of the car, is the water tank, 15 ft. in length, and having a capacity of 1,250 gallons. The car is provided with end and side doors, the latter in three sections opening outward, as shown, in order to afford free access to every part from the outside. The boiler has a hinged stack that can be lowered to a horizontal position when desired. The cylinders one 9 by 16 in. stroke, and drive a 5-foot pulley wheel from which the power is transmitted to the main shaft of the spotting machine by a three-ply rubber belt, 12 in. wide and 58 ft. long. To insure steadiness when working, and relieve the springs of the load, four jack-screws resting on planks extending across the track rails, are placed under the cross-frame tie timbers, as shown.

The machine proper, a plan and side elevation of which is shown on a larger scale, consists of a frame carrying spindles for a pair of circular saws of 30 in. diameter, and a pair of cutter-heads, the saw spindles being geared to run 1,250 revolutions and those of the cutter-heads 3,375 revolutions per minute. A pair of chutes underneath carry away the chips from the cutters. The space for belting being limited, chain-wheel and gear mechanism is provided on one side of the machine to regulate the feed or movement of the ties. The two saws are set 8 ft. apart, so that the ties as they come in contact with them are cut 8 ft. in length. The cutters which do the spotting are not placed on the same line across the machine, one being 6 inches in advance of the other. They are spread from outside to outside a little more than 5 ft. 4 in., their collars being about 5 ft. 6 in. apart. The main shaft has 4 pulleys, two of which drive saw shafts at back end of machine, from which counter-shafts the cutter-heads are driven. The counter-shaft pulleys are 18 in. in diameter and 6¼ in. face. A shaft with a fast-and-loose pulley is driven from the saw shaft, and in turn drives an intermediate shaft from which a belt runs to a pulley on shaft carrying wheel gearing into a pocket wheel shaft; the object of this roundabout transmission of power being to reduce the speed of chain and adapt it to the movement of the ties. The whole length of the chain is 21 ft. 8 in.

The ties are put in at the left end, over draw-bar, and are carried by the ways until they come in contact with the saws. From this point forward guide-plates on sides and plates on top keep them in place and prevent lateral and vertical movement while passing spotters. The vertical guides, which are in the form of a bent plate, are held by two brackets on each side, as shown in end view. Long screws run through sleeves in brackets and are adjusted by lock-nuts on top. These brackets are furnished with guide-planks, shown in end view, which prevent end motion of the ties. The feed chains are driven by gearing at inner end of machine. The outside frame timbers are necessarily very stiff in order to resist the pull of the belts, and these are arranged as symmetrically as possible to avoid side strains.

Tests of Train Brakes.

The following tests of the train brakes of the American Brake Co., of St. Louis, were made Oct. 29, on the White River branch of the St. Louis & San Francisco Railway, by request and under the supervision of S. W. Robinson, Professor of Mechanical Engineering, Ohio State University:

FIRST TEST, TRAIN EMPTY.

Engine and tender equipped with our Steam Driver and Tender Brakes.
Twelve coal cars, equipped with our Improved Automatic Brakes.
One caboose, unequipped.

Total weight of train, 164 *tons*. *Length*, 429 *feet*.

No. stops.	Speed in miles per hour.	Time in seconds.	Distance in feet.	Grade in feet per mile.	
1	23	35	612	26 Down.	
2	20	32	503	52.8 "	
3	23	47	1,090	79.2 "	
4	26	41	1,108	79.2 "	
5	24	29	758	31.7 "	After this stop, locking pawls were adjusted.
6	23	27	552	26.4 "	
7	24	23	468	26.4 "	
8	18	21	475	52.8 "	Backing and allowing momentum to apply brakes.
9	19¾	15	175	13. "	Backing and allowing momentum to apply brakes.
10	25	50	1,050	42.2 "	Backing. Time and distance taken from moment engineer first shut off steam, and includes all operations of the stop. (See note below.)
11	24	20	380	52.8 "	Engine detached at speed. Hand-brake set on three forward cars. Time taken when pin was pulled.

NOTE.—In making a backing stop, when the desired speed is attained, the engineer shuts off steam and applies Steam Driver Brake to draw the "slack" out of the train, then releases the Steam Brake, and allows the momentum to apply the Automatic Brake.

	Speed.	Time.	Feet.	Grade.
Average of all stops..................	22¾	31	652	44
Average of ordinary forward stops.	23⅓	38	727	46

SECOND TEST, TRAIN PARTLY LOADED.

Engine and tender.
Twelve empty coal cars, equipped with Automatics.
Three loaded coal cars, not equipped with Automatics.
Two loaded box cars, not equipped with Automatics.
One caboose, not equipped with Automatics.

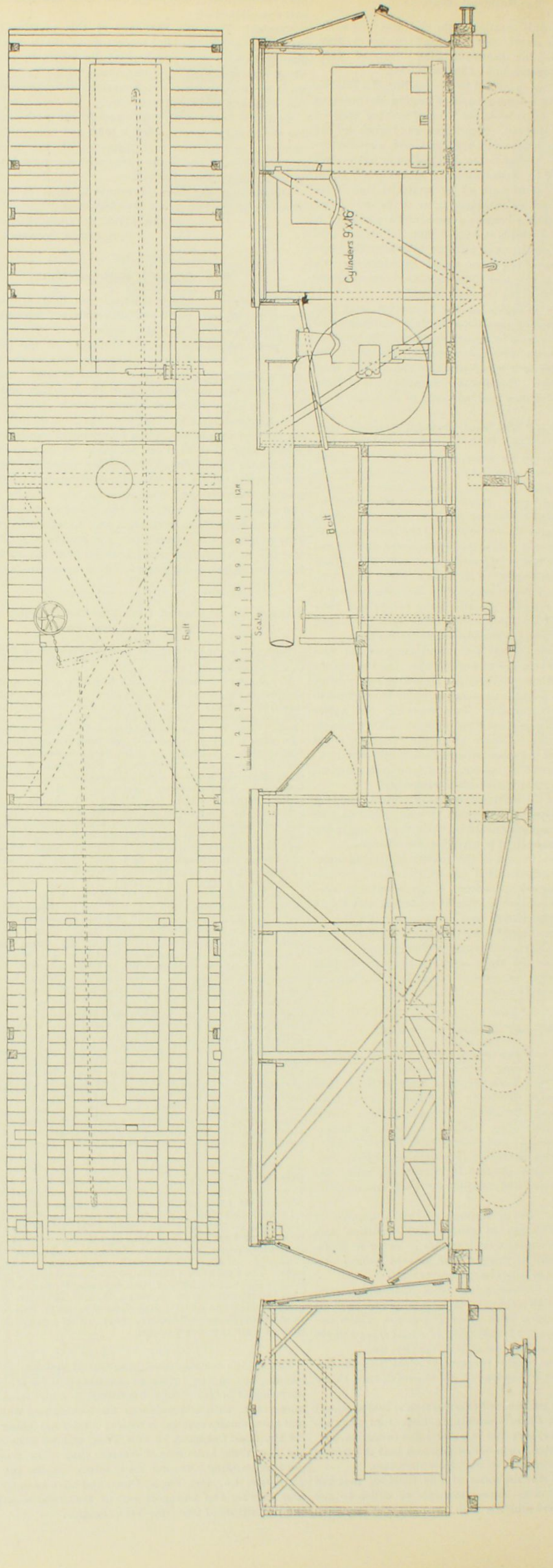
Total weight of train, 281¼ *tons*. *Total length*, 585 *feet*.

(Loaded cars were interposed with empty cars.)

No. stops.	Speed in miles per hour.	Time in seconds.	Distance in feet.	Grade in feet per mile.
1	16	30	394	43 Down.
2	28	30	437	52.8 "
3	22½	35	408	37 "

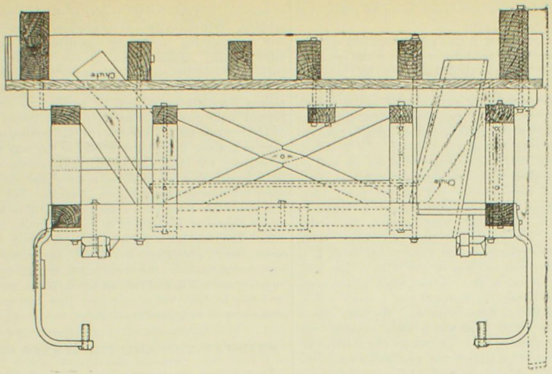
	Speed.	Time.	Feet.	Grade.
Average..............................	22	32	413	44

Speed taken from speed recorder. Distance measured. Grade taken from Chief Engineer Survey and Profile.



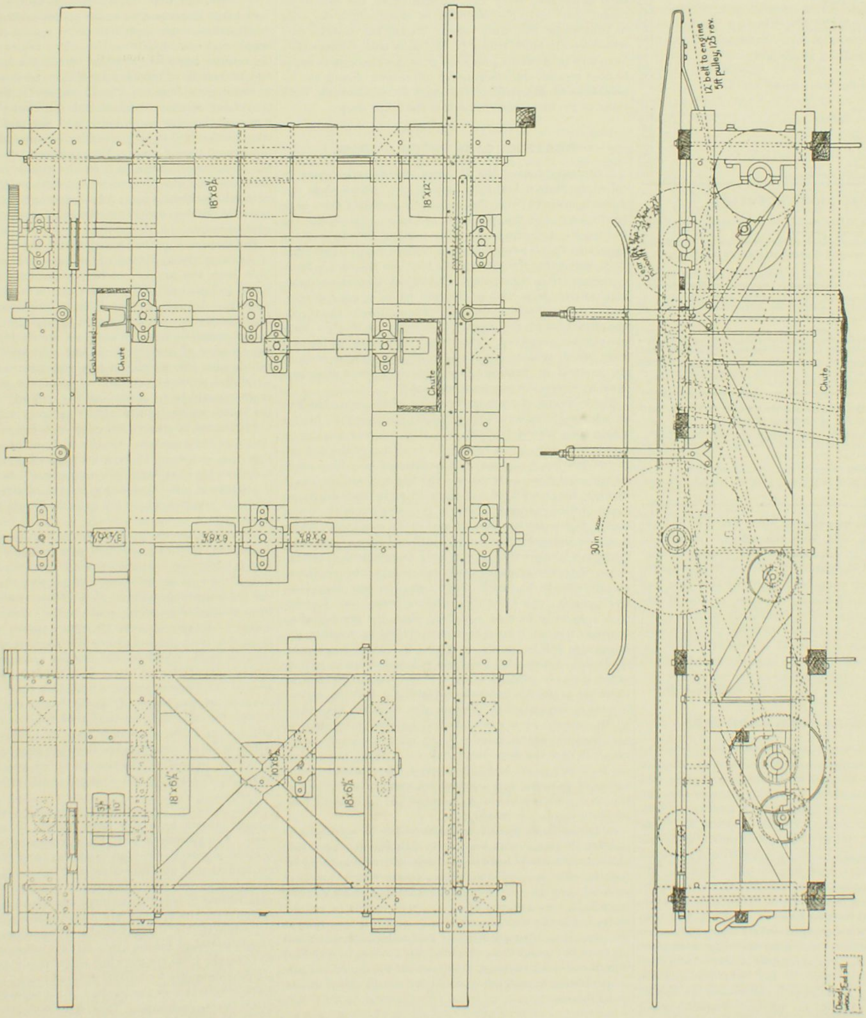
TIE-SPOTTING MACHINE CAR—CENTRAL PACIFIC RAILROAD.

(*See Opposite Page.*)



End View of Body, and Section of Floor.

THE Michigan Car Company is turning out twenty cars per day, not its full capacity, but enough to keep busy its average force of workmen. Its orders for refrigerator cars will keep that department busy for some months to come. It is claimed that a large proportion of the successful dressed meat cars now in use on the railways of the country have come from the shops of this company. It was the pioneer in this business, having built the first dressed beef carrying car in 1868. It was not until some time after this that the manufacturers of the country generally realized how important this business was to become. It was some years, indeed, before the possibility of constructing a successful refrigerator car was universally acknowledged. The company is now turning out four or five of these cars per day—the full capacity for this class of work. The company is just beginning to construct a new dumping car, the "Paragon," which is claimed to be very simple, cheap and efficient. It will also add to its product a new ballast car invented by Mr. T. P. Cordery, of Massilon, O. This car dumps its load between the rails instead of on the side of the track. It is also adapted to use as a coal car, a feature which will, it is claimed, help largely to bring it into general use.—*Railway Age.*



Plan and Side View.

TIE-SPOTTING MACHINE—CENTRAL PACIFIC RAILROAD.

THE Detroit Steel-Works and the Detroit Car Spring Company have lately been consolidated into a new organization called the Detroit Steel & Spring Works. The officers are: Alex. DeLano, president and manager; Chas. P. Choate, vice-president; H. R. Newberry, secretary and treasurer. The capital stock is $300,000. A large crucible steel plant is in process of erection by this company at Springwells, a suburb of Detroit, for the manufacture of crucible spring steel.—*Railway Age.*

THE International Exposition at Amsterdam, Holland, has awarded to the Denver & Rio Grande Railway Co. the highest premium for exhibits of railroad scenery, the views exhibited representing the most striking and picturesque ones along the line of the road. When it is considered that the match for the prize was between Colorado and Switzerland, the D. & R. G. can well afford to put on airs, while Mt. Blanc and the other Alpine peaks hide their diminished heads.

THE Baugh Steam Forge Company is working to its full capacity. Its product of axles is taken mainly by the Detroit Companies associated with it. It is now also making a specialty of links and pins, for which it has a large demand from nearly all the railways in the northern and Western States. In the manufacture of these a special iron of high tensile strength is used in order to insure a product suited to the constantly increasing weight of the loads hauled in freight cars.—*Railway Age.*

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CONTENTS.

	Page.
ILLUSTRATIONS:	
Brake Gear for Standard Car Truck	134
Standard Switching Locomotive, Cin., New Orleans & Texas Pacific Ry	138
Tie-Spotting Machine, Central Pacific R. R.	140
Gunther's Torpedo Snow-Plow	137
Stillwell's Lime-Extracting Heater and Filter	139
New Portable Wrist-Pin Lathe	144
Freight Car Roof	135
Improved Methods in Passenger Car Construction	136
COMMUNICATIONS:	
Express Cars and Train Robbers	136
Passenger Car Roofs	136
EDITORIALS:	
Contract and Home-Made Cars	142
Heating Cars with Steam	142
Machine and Hand-Work in Decorative Art	142
Railway Ties and the Timber Supply	142
Street Railway Locomotives	143
Car Wheel Economy	143
New Passengers Cars, Boston & Albany R. R.	143
Overloading Cars	143
The Pooling System	142
The Type-Writer in Car-Builders' Offices	143
MISCELLANEOUS:	
Northern Pacific Railway	136
Car-Builders' Meeting at Buffalo	139
Tests of Train Brakes	140
Demand for Oak Timber	135
New Railroad Time	137
Uniformity of Signals	137
Painting of Railway Cars	139
Car-Builders' Club, Monthly Meeting	139

EDITORIAL ANNOUNCEMENTS.

Addresses.—*Business letters should be addressed, and drafts and money orders made payable, to* THE NATIONAL CAR-BUILDER. *Communications for the attention of the Editor should be addressed* EDITOR NATIONAL CAR-BUILDER.

Advertisements.—*Nothing will be inserted in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *The editorial department will contain our own views and opinions; and the rest of the reading matter, aside from advertisements, will be such as we consinder of interest to our readers.*

Contributions.—*Articles relating to railway rolling stock construction and management, and kindred topics, by those who are practically acquainted with these subjects, are especially desired. Also early notice of changes in railroad officers, organizations and names of companies.*

SUBSCRIPTIONS *to the* CAR-BUILDER *will be received, and opies kept for sale, at the following places:*

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L. SCHAFFNER, *Cigar and News Dealer, Grand Pacific Hotel, Chicago, Ill.*

WILLIE H. GRAY, 306 *Olive Street, St. Louis, Mo.*

ROBERT CLARKE & CO., 65 *West Fourth Street, Cincinnati, Ohio.*

WE take pleasure in announcing that Mr. WM. E. PARTRIDGE, of New York, will from the date of our present issue be associated with the editor of this journal in conducting the editorial department. Mr. Partridge has for the last ten years been connected with the *Iron Age*, and was for some time an Associate Member of the Master Car-Builders' Association. His familiarity with car and locomotive construction and other branches of mechanical science, will render his services as a writer for the CAR-BUILDER especially valuable. We bespeak for him, as its representative, the favorable consideration of master mechanics, master car-builders and railway men generally.

CONTRACT AND HOME-MADE CARS.

The question whether railroad companies should buy or build their own cars is likely to remain an open one for some time yet. There is much to be said on both sides, and when it has been conclusively proved by one side that the contract system is best, the experience of some particular road or roads to the contrary creates a desire to "wait for further returns." When a car-builder has a first-class contract, with the details carefully specified and provision made for an honest and rigid inspection, he can go into the market with some assurance that he can get cars quite equal to those of home construction. This system, however, calls for several things, which if omitted will ruin the work and make it about equal to fair slop-shop building. The specifications, for example, may state with great particularity what the size and number of screws to a window-lift shall be, and omit to say whether sills are to be free from sap or untapped. Doubtless the screws put in would fill the bill, but no question would be raised as to the quantity of virgin pine under the floor. An incompetent or dishonest inspector will drive a coach-and-four through the best specification ever drawn, while a careless one, or one who has not had a good deal of practical experience, will make the contract a farce, and the company will be protected only by the honesty of the builders. To expect to get first-class contract cars at second or third-class prices is like making change so as to get three two's for a five. As in all games of the kind, somebody is sure to get less for his money than he expected. Honest and responsible builders will not attempt to build first-class cars under rigid specifications as to prices that afford no fair margin of profit.

Plain and obvious as it is that good work can only be had at correspondingly good prices, yet it is the most difficult thing in the world to rigidly adhere to this principle in the matter of contract work, and especially contract cars. It may be asked by the advocates of contract work whether the best cars built in road shops are enough better than those built by the regular manufacturers, to compensate for the additional cost of the building; for it is conceded, we believe, that the superior facilities of well arranged, well equipped and well managed contract shops enable them to turn out a car of the same identical construction at less cost than it can be built for in a first-class road shop. To strike the balance of economy is not an easy thing to do. Except in aggravated and exceptional cases, it is probably not very great one way or the other. But still, the common experience is that contract work is not quite as satisfactory in respect to material and a strict adherence to specifications as home work is. We may cite as an instance a lot of 500 cars which were recently contracted for by an Eastern road. Although the master car-builder spent most of his time in the two shops where the contracts were placed, and although his inspection was as rigid as possible under the circumstances, the cars by no means came up to the standard of those which the road built at about the same date. We say the contract cars were recently built, which is not quite true, because they have now been running for some time, long enough to begin to need repairs, and the general impression among the repair shops of the road is that they are less durable than those of the same pattern built in the home shops.

HEATING CARS WITH STEAM.

A correspondent of the *Railway Age* describes what is called the Martin Anti-Fire Car Heater, which does not differ materially from the numerous methods that have been tried to use the steam in the locomotive boiler for heating the cars of a train. The particular feature of the apparatus that is new consists of flexible steam-tight couplings connecting the steam pipes between the cars. These couplings are so constructed as to adjust themselves automatically to the motion of the cars while passing curves, and to the oscillations caused by inequalities in the track, the pipes holding the steam as perfectly as if they were one continuous piece. This is all very good, as far as it goes, but there does not appear to be any thing new about the method of heating, except in the style of the couplings by which the pipes are connected.

The warming of passenger cars by using either the live or exhaust steam from the engine for that purpose, has for a long time been a favorite idea with a great number of people who have no very precise knowledge of the difficulties which lie in the way. Experiments have been made with special steam generators in the baggage car, the steam making the circuit of the train in pipes and returning again to the generator, where it is condensed in the water tank. Hot water can also be used in the same way. These methods, however, have rarely outlived the experimental stage, not because they are utterly impracticable, but because they are attended with too many inconveniences and drawbacks to justify their use. In the first place, live steam can not be spared from the locomotive, especially in cold weather, when the condensation is great; nor can it be spared in any kind of weather, unless people will be content to travel in slow and comparatively light trains. Still less can exhaust steam be spared, unless it can be utilized when it is not wanted to keep up the draft or do the necessary whistling. Another serious trouble is, that when all the cars of a train are dependent on the engine or a special boiler for heat, they must be kept together or the supply is cut off from some of the cars. In case the couplings break, or a car has to be taken out from any cause and side-tracked, there must be some means of warming each car independently of the others, or the occupants would suffer more or less in case the temperature was below freezing.

So far as the danger of cars taking fire in collisions is concerned, steam and hot water heating are very safe methods and would have been universally adopted long before this were it not for the difficulties to which we have referred, and others of a minor character to which we need not allude. As a matter of safety, cars could, of course, be heated in the way proposed, and each car provided at the same time with a stove and fuel to be used when cut off from the steam or hot water. This would be attended with some extra expense, it is true, but the danger of passengers being burned alive would be considerably diminished thereby.

THE POOLING SYSTEM.

Public prejudice against the pooling of railway freights has very much abated since the system was first introduced. At first there was something in the word "pool" that forcibly suggested a Wall street gambling operation in fancy stocks. A clamor was raised against the practice being applied to freight traffic, and efforts were made by legislatures to break it up under the impression that the thing must be bad in itself because it had a bad name. It was supposed to be a new combination scheme to uphold monopolies and deprive the public of the benefits of competition. But the system in its practical operation is rapidly vindicating itself by securing a stability of rates equally advantageous to the railways and the public. While its effect has been to reduce instead of advance rates, it has at the same time prevented the violent fluctuations, caused by putting up rates for a time to make good the losses incurred in freight wars and reckless competition. There is still an inducement, however, to practice underhand dealing in the way of rebates to shippers, and other devices equivalent to the cutting of rates, especially when business is dull, and each road is eager to secure the largest share of traffic. But the time will doubtless come when the system will be brought to such a degree of perfection as to effectually cure these evils. The machine is yet in a comparatively crude condition, but its advantages in railway administration have been demonstrated. It has corrected the prejudices that formerly prevailed, and neither the railways nor shippers are likely to make war upon a plan that has so far been productive of such good results.

RAILWAY TIES AND THE TIMBER SUPPLY.

The fact that our native timber supply is growing less every year, and that no effective measures have as yet been taken to prevent its wasteful destruction, very naturally causes some apprehension in regard to the future supply and cost of railway ties. The railway mileage of the country has nearly doubled within the last ten years, and large areas of territory are still in need of new roads to invite settlement and afford facilities for the transportation of agricultural, mining and other products. These new roads are sure to be built, and the rapidity of their construction will in all probability be equal to that of the mileage of recent years. This new construction will, at the start, make a large draft on our timber resources for cross ties, and also for renewals a few years later. But without speculating upon future contingencies, let us see how the problem looks from the stand-point of our present road mileage.

There are now in the United States about 145,000 miles of railway track, including sidings and second track. This, with the number of ties to the mile (estimated at 2,640) makes a total of 382,800,000 ties on the existing roads. Assuming the average life of ties to be six years, the number of renewals each year would be 63,800,000, or 440 ties to each mile of track. We do not know just how many ties an acre of average woodland will yield, but calling the number 100, which is a fair estimate, the quantity of woodland required per mile of track for each year's renewals would be 4.4 acres; and the quantity required for the yearly renewals upon 145,000 miles of track would be 638,000 acres, or an area not quite as large as one half of the State of Delaware. On the basis of present mileage this does not seem to be a very alarming inroad on our forests so far as railway ties are concerned, especially when it is borne in mind that a new growth of timber is every where in progress where the existing forests are not being destroyed.

Looking at the matter from a tree-planting point of view (a mode of providing against a scarcity of tie material that is beginning to attract considerable attention) the results are somewhat different. Supposing the renewals of ties for the present mileage of 145,000 were all to be made from planted trees, what would be the extent of plant required? An acre contains 160 square rods. If one tree is planted to each rod and grows to a size that will make two ties, the yield would be 320 ties per acre, or 204,800 per square mile of planted trees. This would require a planted area of 311.5 square miles—a little less than one-fourth of the area of the State of Rhode Island—to produce ties enough for one yearly renewal of 63,800,000 ties for 145,000 miles of track; or a planted area of 1,869 square miles, which is 250 square miles less than the area of the State of Delaware, to produce ties enough for six yearly renewals, or 382,800,000 ties for the existing track mileage of 145,000 miles.

This, however, is on the supposition that the trees are already grown to a size large enough to make two ties each. The growth of trees being comparatively slow as contrasted with the growth of railways and the consequent consumption of ties, this element of the problem must not be lost sight of. Assuming that it will take 20 years for a planted tree to reach a size large enough to make two ties, it would require 6,230 square miles of tree plant—an area exceeding that of Rhode Island and Connecticut—to yield a supply sufficient for the above-named mileage during the 20 years the trees are growing, or for three and one-third six-year renewals for 145,000 miles of track, and requiring 1,276,000,000 ties, or the product of 27½ acres of tree plant (8,800 ties) to each mile. These figures merely indicate in a rough way the scale upon which tree culture would have to be carried on in order to meet the wants of a track mileage such as we have at present. The supply of ties from planted trees will doubtless be very considerably increased during the next fifty years, but the regular forest growth will be relied upon almost exclusively for a long time yet, and the draft upon it will be met by the continuous new growth, and by the more remote timber regions becoming more accessible by the extension of railways.

Railway construction, however, is bound to go on until

it reaches a limit at which it ceases to be profitable. The consumption of ties will increase at a corresponding rate, while the question of future supply will become more serious and pressing as the cost increases and our native forests become thinned. It is pretty certain that wooden ties will not be discarded until our timber resources are far less abundant than they are now, or until some other material as cheap and as serviceable is substituted for wood. It is not likely, however, that any such material will be found, but it is more than probable that the durable properties of wood, especially the soft and porous kinds that are not now available for ties, will in time be very much increased by some of the preservative methods that have already proved very effective so far as they have been tried. But these methods are not likely to be used very extensively in this country until the cost of ordinary ties is considerably more than it is now.

CAR WHEEL ECONOMY.

The wheels of a car being the foundation of the structure, they ought practically to be the best part of it, and with respect to a very great number of passenger and freight cars this is undoubtedly the case. But that it is not universally the case will be readily admitted by wheel makers as well as by railroad men. We refer more particularly to cast iron chilled wheels, the average service of which is a little more than 50,000 miles, while some of them make more than four times as much and others only one-quarter as much. This difference is due to defects in manufacture and also to bad usage, the manufacturers being mostly at fault, if, indeed, it can be called a fault not to make better wheels than they are paid for making. Like most other manufactured wares, the quality is determined by the specification and price. The best charcoal iron is none too good to make good wheels of, and the best old wheel stock is not good enough. Good wheels can not be made of poor iron, but careless or unskillful makers can make poor wheels out of good iron. The steady increase in the weight of the loads carried requires stronger and better wheels, but such wheels will not be forthcoming so long as parties who want them the most are buying the lowest priced wheels to be found in the market.

The great want with railway managers seems to be a steel-tired, elastic wheel, that shall be fully equal to a paper wheel in the matter of service, and that can be had for about fifty cents less than the price of an inferior cast-iron wheel. There are insuperable difficulties, however, in the way of getting just such wheels as are wanted at prices buyers are willing to pay for them; and because they can't be had on these terms the railroads are inclined to think they are not treated fairly. Some roads buy on a three years' guarantee and feel perfectly satisfied that a ten dollar wheel is good enough, whether it is made of sash-weights or something that is a shade better. If it holds together one year and then breaks down, the work it has done is all clear gain, apparently. It looks so on the surface at all events. But a surface view of things is almost always deceptive. Do these wheel economists suppose that it costs nothing to replace a worn out or condemned wheel, even though the wheel that takes its place costs them nothing? If time freight happens to be delayed or destroyed by one of these "shoddy" wheels, and especially if several car loads of perishable freight becomes unmarketable while a condemned wheel is being replaced, to say nothing of other possible contingencies, the economic side of the matter assumes a somewhat different aspect from what it does when viewed superficially.

STREET RAILWAY LOCOMOTIVES.

The Committee on Motive Power, at the recent annual meeting of the American Street Railway Association, made an elaborate report, in which decided ground is taken against the use on street railways of any kind of motor which propels itself. The reason why such motors cannot be used to advantage on street lines, is said to be their insufficient traction to propel the load under all the conditions incident to such lines, these conditions having reference mainly to grades, short curves, crowded cars and tracks obstructed by snow and ice. "Unless," says the report, "invention devises some means of increasing the traction beyond the weight of the load, and so long as the power of the motor is applied merely to rotate the wheels, there is an insurmountable barrier to overcome, to say nothing of the necessity of having the machine of such a construction as to be easily controlled by the class of men usually employed on street railways." It must, of course, be admitted that wheel traction is a different thing from cog-wheels or the drawing traction of a horse's muscles with his hoofs braced against the road bed. In the one case the purchase for moving the load depends on the adhesion, and the adhesion upon the weight on the driving wheels. In the other case the purchase depends upon animal vitality and muscular power. In either case the weight to be moved must be adapted to the power, or the power to the weight, and it is difficult to see why this can not be done equally well, whether horses or mechanical motors are used. Assuming the grades and curves to be equal, there is apparently no difference except in the rails, so far as motors are concerned, between the horse-car track in Sixth avenue, and the steam-car elevated track a few feet above and directly over it. It is manifest that whatever method of propulsion is employed, the power must be adequate to the load, and this applies equally to traction motors, horses and stationary engines that operate cable ropes.

In regard to the control of traction engines in stopping and starting, it has been repeatedly demonstrated on the street lines of New York and Brooklyn, that the movement of these motors can be controlled fully as well as that of horses. There was the Remington steam car that was tried on the Bleecker street line in 1873, carrying loads of sixty passengers up grades of 1 in 14; the Angemar car that run two months on the Third avenue line in 1879; a steam car built by the Baldwin Locomotive Works in 1876 for the Atlantic avenue line in Brooklyn, and after undergoing some modifications was tried the following year on the Market Street Railway in Philadelphia, upon which it run 88 miles a day for 28 consecutive days without losing a trip or requiring any repairs, and at a cost of $5.51 per day, covering everything. In the general control of their movement, in stopping and in starting, these car motors seemed to meet all the required conditions. But after a period of trial more or less protracted, they were all laid on the shelf, and now the only hope of getting rid of horses appears to be in the cable system, which the above-named committee regard with great favor, mainly for the reason that its power does not depend on frictional contact between wheels and rails.

NEW PASSENGER COACHES OF THE BOSTON & ALBANY RAILROAD.

A recent trip over this road has given us an opportunity to note some of the good points of the new coaches that have recently been put on, and to study their good qualities pretty thoroughly. At the end of a five hours' ride we were inclined to consider them decidedly comfortable, even from a tired traveler's stand-point. One of the first things that attracts attention is the large size of the windows, the glass being 22×32 inches. The windows themselves have flat sills, which make a good arm-rest; and instead of blinds which are liable to stick fast when one wants to pull them down, or to drop when they should stay up, Hartshorn roller-curtains are used. These curtains are in this respect much more convenient than blinds, and, as their weight is considerably less, they would seem to be altogether preferable. The window finish is plain and the openings square. The windows are separated by posts and panels alternately, or rather, they are arranged in pairs, the pairs being separated by panels with a four-inch space between the two windows. The bottoms of the windows are made tight by a weather strip on the inside—an idea that is worthy of attention. With respect to the heaters, we noticed when they were shaken down that the ash-pit was connected with a hopper extending through the bottom of the car, so that the ashes and cinders can be discharged outside without raising a dust in the car. The ceilings and the whole interior finish of the cars are mahogany. The seats are upholstered in olive plush and have a plush binding on the backs With 42-inch paper wheels and very elastic springs, the cars are of course easy riding—so much so, in fact, that when they are moving at a high speed one can hardly realize they are not going slow. In the matter of lighting the arrangement is peculiar. Ten lamps are used to a car, and yet, with the exception of the bell-cord, the clear-story presents a clear and unobstructed space. All the lamps are hung just below the sides of the raised roof, and are so placed that every seat has a good share of the light. There is one feature that can hardly fail of being appreciated. The doors are provided with buffers to prevent slamming. Adjustable springs are also placed on the doors, which throw them forward far enough for the buffer or stop to catch and hold them.

MACHINE AND HAND-WORK IN DECORATIVE ART.

With respect to decorative art it must, we think, be admitted that machine-work as contradistinguished from handwork, is detrimental to the formation of a true artistic taste. And the reasons for it are obvious. No matter how perfect the product of the machine may be its perfection loses its charm when it is discovered to be a product of labor-saving economy. The machine may be a tool or instrument requiring the intelligent direction of a skilled workman in order to produce certain effects, but when it ceases to be a tool and the workman becomes its attendant, he has no opportunity to impress his own individuality upon what he is doing. He forms no part of the machine, and can impart no graces in addition to what the insensate machine is instrumental in producing. In such case the product can hardly be considered a work of art. It may be a chromo, or a carpet, a minted coin, or imitation carving. Its value artistically will be determined by the extent to which the process of production has been cheapened by mere mechanism. Machine-wrought ornament, like paste diamonds, may be so perfect as to deceive the eye, but it none the less lacks genuineness, because, like the paste, it pretends to have cost what it did not, and to have an intrinsic value which it has not. In other words, it is artistically a sham and a deception, as much so as a handsome imitation rosette carving made by pressing a die into a plastic composition of woody fiber, colored like mahogany, and subsequently hardened by artificial process so as to look like natural wood.

Utility has practically nothing to do with mere decoration, but it does have a great deal to do with the economy of labor-saving machinery and appliances. If machine work could be confined within the strict limits of real usefulness without encroaching upon the province of art, the popular taste, instead of being vulgarized by all sorts of shoddy devices, would remain comparatively unperverted and safe from demoralization. Machine-work is nevertheless a good thing in its sphere, and its sphere is as wide as the range of human wants. But it does not include the sphere of art. Hand-work is high priced, to be sure, and this for the reason that in the elaboration and working out of decorative designs it can not be had at a low price. If we want painted china, real carvings and frescoes, honest cornices and the like, we should be willing to pay not only for the time and manual labor expended in their production, but for the artistic taste and discrimination that must be exercised. Otherwise the labor might be thrown away or wasted in puerilities. In high art, nor in low art for that matter, unless it is very low, there can be no division of labor; and no product of art, no really effective decorative work, is possible unless the producer of it takes a pleasure in the doing of it, and an honest pride in it when it is done. This a machine is incapable of doing, and the attendant who watches and directs its running labors under a like disability because he is cut off from using his own intellectual resources.

OVERLOADING CARS.

After a lot of new freight cars have been put on the road, with their weights and capacities stenciled upon them in regulation style, it is a little annoying to the general manager to receive letters from station agents asking how much maximum load the new cars can carry. Not long since, a lot of cars with a stenciled capacity of 30,000 pounds, were put on a certain road, and shortly after the superintendent began to receive letters from the agents asking whether they could not put 40,000 pounds in them. The reply was, of course, "Can't you read the capacity marked on the sides of the cars?" The reply was pertinent, although a little evasive, and would have been quite as effective had it been accompanied with a general order stating that in the loading of cars marked capacities must not be exceeded. In this instance there was no such order, and not long afterwards one of these same cars, after being cut out of trains a number of times on account of hot boxes, was finally, after burning off a journal, run on the scales and its load was found to be 56,000 pounds! This rather confirms the impression that is becoming very prevalent among railroad men, that the tendency is towards heavier loads, and if every hot-box car were weighed, there would no longer be any doubt about the matter. Generally speaking, the conclusion seems to be that the load of a freight car is what a good-natured station agent will allow a shipper to put in it. All reports, indeed, go to confirm the fact that the relation of car load to car capacity is to a very great extent an unknown quantity. So long as some cars are marked 40,000 pounds, shippers very naturally think there is no fairness in allowing other cars to carry only half as much.

Advantages of the Type-Writer in Car-Builders' Offices.

The superintendent of a car shop, especially a large one, has in addition to his other duties a heavy burden of correspondence. His allowance of clerks, unless it is quite liberal, does not relieve him a great deal in the making out of reports and other more intricate matters of detail to which his personal attention must necessarily be given. In some car-shop offices a stenographer and type-writer are employed to such good advantage that their services are not likely to be dispensed with. There are many master car-builders, however, who are deterred from attempting to reorganize their clerical force because they do not quite understand how it should be done nor what labor they can expect to save. A stenographer in New York who can take down letters from dictation and write them out with the type-writer is paid from $12 to $15 a week. A man or woman writer who can be had at these figures can rarely write more than 125 words a minute. This, however, is no disadvantage, for very few persons can compose a letter as rapidly as this without the necessity of making many corrections.

We have, then, as a first requirement in the case of the stenographer, a clerk who can take down 125 words per minute, a point in regard to which he should be at first put to a satisfactory test, especially as to letters of a technical character, to see that the manuscript is correct. A single letter is not sufficient; but a dozen or more should be dictated and written out to see if the writer can do his work with the requisite speed and accuracy.

The next thing is the type-writer. We have had experience only with "Remington, No. 2." This uses capitals and small letters, and is a satisfactory and durable machine. In one railway office in this city the caligraph is used, but we can say nothing in regard to its operation from experience. Stenographers, however, are generally more familiar with the Remington machine, and there would probably be less difficulty in getting an operator for it than for the caligraph. After

obtaining a stenographer and type-writer, the car-builder or other business man must not expect that it will all be plain sailing at first. While his ordinary conversation may be accurate enough for the usual routine of business, and his letter composition equally so when he does his own writing, it is not by any means certain that he can at the start dictate a letter that will pass muster after it is put in black and white, without sundry alterations. Dictating letters is, in fac an acquired art, the same as writing letters, and the way to master it quickly is for the learner to take his morning's mail, read each letter carefully, and think out what he wishes to say in reply with more care and precision than usual. Then the several replies should be slowly and carefully dictated to the stenographer. A week or two of this kind of practice will enable any person with ordinary command of language to dictate correct phraseology as fast as an average stenographer can write. Both will acquire increased facility by practice, the clerk soon becoming so familiar with names and addresses that only the body or essential portions of the majority of letters need be dictated.

Now let us see what is practically gained by this. In the first place, the manual labor of writing is saved, a relief which is so much energy in reserve. A letter containing, say 500 words, can be dictated in five minutes, while a letter of the same length, including address, signature and envelope, written in long hand, would consume twenty-five minutes, with the chance of its being less accurate, and expressed with less conversational facility and freedom. It is safe to say that there are few business men who have realized the benefits of this system that would be willing to abandon its use.

New Publications.

MONCKTON'S PRACTICAL GEOMETRY: Being a series of lessons beginning with the simplest problems, and in the course embracing all of geometry likely to be required for the use of every class of mechanics, or that are needed for instruction in mechanical schools. Illustrated by 42 full-page plates.

The arrangement of the problems in this little manual is admirably adapted to the use of schools and all classes of mechanics, the problems being represented on the right-hand pages and explained on the left-hand ones, thus presenting both to the eye at once and avoiding a reference to other pages. The lessons begin with the simplest elements of the science and proceed in regular order to the more complex, thus leading step by step to a knowledge of what to the beginner may at first appear hard to understand. By James H. Monckton. Wm. T. Comstock, 6 Astor Place, New York. Price $1, sent by mail, postage prepaid.

Building.—This well-conducted and handsomely illustrated monthly begins its second volume with the issue of a special illustrated edition to be published monthly at the same time as the regular issue. The first number of the special edition contains an attractive display of lithographic plates representing the best architectural designs selected from foreign publications, and comprising views of public buildings, interior construction, decorative details, etc., of the greatest practical value to professional architects and builders. Such a journal is well suited to meet a demand that is constantly increasing, and can hardly fail to correct and improve the popular taste in whatever pertains to beauty of design, selection of materials, durability, convenience, sanitary needs, and every essential feature of construction in the various classes of buildings, city, rural and suburban. Every householder, and every one who contemplates the construction of a home, will find the practical suggestions contained in a first-class building journal, such as this publication aims to be, of far more value than the cost of subscription. We have no hesitation in recommending it as a good investment for every one who has any interest in building. Published by Wm. T. Comstock, 6 Astor place, New York. Price of regular edition $1 a year; special illustrated edition, $5; single numbers, 50 cents.

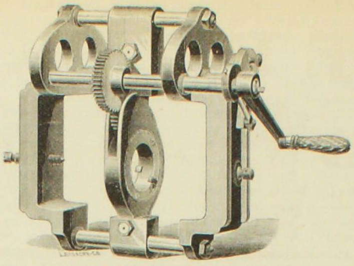
Journal of Progress, Wood-Worker and Machinist.—This is the name of a new class-journal to be published monthly in Philadelphia. Its title indicates the specialty to which it will be devoted. The initial number is handsomely printed and contains a variety of well-selected matter pertaining to woods and wood-working, also several illustrations of new and improved wood-working machinery, an industry which has within the past few years been brought to a high degree of perfection. The editorial articles are well written and indicate that the new journal will be a valuable one in its sphere. Jno. H. Bentley, editor and publisher. Price of subscription 60 cents a year.

THE BELLEFONTE CAR WORKS, at Bellefonte, Pa., are now offered for sale at $27,500. The buildings are large and well equipped with tools, and there is a water power belonging to the works capable of running all the machinery. The shops have a capacity of 8 box cars a day.

THE firm of Genet & Silver, dealers in Mahogany and Hard Wood Lumber, 15th street and 9th avenue, New York, has been dissolved, and the business will be continued at the same place by L. Franklin F. Genet, member of the late firm.

THE article in our November issue on "Dining Cars," was erroneously credited to the *Elevated Railway Journal* instead of the *Railway Review*.

THE second annual meeting of the Ohio State Tramway Association was held at Cleveland Nov. 21. Several interesting papers were read and discussed. Mr. G. B. Kerper, of Cincinnati, preferred horses to mechanical motors. Mr. Charles Hathaway, of Cleveland, argued in favor of center-bearing rails, and for suburban roads, narrow gauge tracks. The issuing of passes was condemned on general principles, but as a matter of expediency the practice would have to be tolerated. The bell-punch also received a share of condemnation on account of the excessive royalties extorted by patentees. The following officers were elected for the ensuing year: A. D. Rogers, of Columbus, President; John Kilgour, of Cincinnati, Vice-President; O. S. Brumback, of Toledo, Secretary; and F. E. Seagrave, of Toledo, Treasurer. The meeting adjourned to meet in Columbus, on the second Wednesday of next November.



Portable Wrist-Pin Lathe.

THE turning off of wrist pins when cast or forged solid in locomotive cross-heads is a laborious and expensive process, and to get them perfectly round and in line a very difficult operation. This work can be accomplished in a very expeditious and correct manner with the portable tool shown in the engraving. The operation of the machine is easily understood. First lay out center-marks on outside of cross-head exactly opposite where the center of the pin is wanted. In these center-marks screw the centers of the machine, when the tool will be in position for work, the driving mechanism and cutter holding all parts in the center, and as firm and strong as though they were solid. After being placed on the cross-head for work, the cutters are so arranged that the whole length of the pin can be turned from end to end, and as true and smooth as though turned in a lathe. The advantages of having a true cross-head pin, the work being done in a very short time, make the tool one of the best labor-saving devices in the market.

Built of several sizes (the standard size being adapted to a great range of locomotive cross-heads) by the L. B. Flanders Machine Works, Pedrick & Ayer, Proprietors, Philadelphia, Pa.

THE Marshall Car Wheel & Foundry Co., at Marshall, Texas, commenced using their new works Nov. 15. They have a capacity of 100 car wheels a day. The iron used for wheels is made from brown hematite ore at the company's Lou Ellen furnace, seven miles from Jefferson, Texas. It is exclusively charcoal cold blast, is used without admixture and combines in a remarkable degree chilling properties with great strength and tenacity. Much doubt has been expressed by wheel manufacturers as to whether wheels made with no admixture of different irons are capable of giving a large mileage. The record of this company's wheels thus far shows a most satisfactory mileage, not only upon local roads to which they have heretofore been confined on account of the limited capacity of the works, but also upon some leading lines where their qualities have been fully tested. Mr. Geo. B. Nichols, the Master Mechanic of the Gulf, Colorado & Santa Fe road, writes that the mileage of these wheels on that road can not at present be given for the reason that none of them have as yet been taken out, but that they have made already over 100,000 miles, or double or treble that of any other wheels used on the road; and this statement is endorsed by Mr. John Sealy, the General Manager.

Our Directory.

We note the following changes since our last issue. Our readers will do us a great favor by giving us prompt notice of any changes that may come to their knowledge, or of any errors that may be noticed in our list:

Baltimore & Ohio.—Third Vice-President Orland Smith will, for the present, act as General Manager of the Trans-Ohio divisions in place of Bradford Dunham, who has gone to the Louisville & Nashville.

Central Vermont.—John W. Hobart, for a number of years past General Superintendent, has been appointed General Manager.

Chicago & Atlantic.—The locomotive and car departments have been consolidated under one management, and George A. Hill appointed Master Mechanic in charge of both.

Chicago & Northwestern.—W. B. Linsley, of Peninsula Division, is appointed Assistant General Superintendent. W. F. Fitch is Superintendent of Peninsula Division, vice W. B. Linsley, and W. P. Cosgrove is Superintendent of the Winona & St. Peters road.

Delaware & Hudson Canal.—Thomas Howard is Master Mechanic at Oneonta, N. Y., vice C. A. Jones.

Denver & New Orleans.—S. P. Weller has resigned the position of Master Mechanic, and J. H. Kirk, formerly of the Denver, South Park & Pacific, has been appointed in his place.

Detroit, Grand Haven & Milwaukee.—S. R. Callaway has been appointed General Manager. He is General Manager of the Chicago & Grand Trunk also.

East Tennessee, Virginia & Georgia.—H. Perkins, formerly of the Charlotte, Columbia & Augusta road, has been appointed General Foreman of Car Department of Atlanta and Brunswick Divisions, with office at Atlanta, Ga.

Fredericton.—This road is now operated and controlled by the New Brunswick Railway Co.

Jacksonville, St. Augustine & Halifax River.—W. L. Crawford has been appointed General Manager, and H. S. Ming Superintendent.

Louisville & Nashville.—D. W. C. Rowland has resigned the position of General Superintendent.

Mexican Central.—D. B. Robinson, now General Superintendent of the Chihuahua Division, succeeds Randolph Fink as General Manager, and will have charge of the entire line.

Mexican National.—John Harding is appointed General Master Mechanic of the Northern Division, vice Thomas Milan, resigned.

Missouri Pacific.—Warden Cumming has been appointed Superintendent of the Texas and Pacific Division, vice J. M. Eddy, resigned. A. M. Hager succeeds Mr. Cumming as Superintendent of Missouri Pacific Division.

Northern Pacific.—Vice-President Thomas F. Oakes will, for the present, act as General Manager in place of Gen. Herman Haupt, resigned. B. F. Matthias has been appointed Superintendent of the Missouri Division, with office at Bismarck, Dak.

Philadelphia, Wilmington & Baltimore.—H. D. Gordon has been appointed Master Mechanic in place of S. A. Hodgman, resigned.

Richmond & Danville.—Second Vice-President A. L. Rives has been appointed General Manager also, in place of T. M. R. Talcott, resigned.

Rochester & Pittsburgh.—J. R. Sherburne has been appointed Foreman in charge of the shops at Buffalo.

Sonora.—Thomas J. Seeley, Assistant General Superintendent, died Oct. 1.

Southeastern of Canada.—A. H. Alden has resigned as Superintendent, and the office is abolished.

Syracuse, Chenango & New York.—This road has been purchased by the Syracuse, Ontario & New York Railroad Co.

Toledo, Cincinnati & St. Louis.—Charles A. Bell is appointed Superintendent of the Cincinnati Division in place of T. D. Bacon, resigned.

Union Pacific.—Frank Reardon has been appointed Division Master Mechanic of the Idaho Division (including the Utah & Northern and the Oregon Short Line), with office for the present at Pocatello, Idaho.

Wabash, St. Louis & Pacific.—C. S. Lape has been appointed Division Master Mechanic, with office at Tilton, Illinois.

As an evidence of the lightning speed of Florida railways, the fact that the Fernandina & Jacksonville road ran over a catamount is pointed to with pride. Any locomotive quick enough to catch a wild cat under its wheels is no snail.—*Ex.*

Which fared the worst, the catamount that the road ran over, or the wild cat that the locomotive caught.

The Century: Programme for 1883-'84.—The programme for the fourteenth year of this magazine, and the third under the new name, is if anything more interesting and popular than ever. With every season, THE CENTURY shows a decided gain in circulation. The new volume begins with November, and, when possible, subscriptions should begin with that issue. The following are some of the features of the coming year:

A New Novel by George W. Cable, author of "Old Creole Days," etc., entitled "Dr. Sevier," a story of New Orleans life, the time being the eve of the late Civil War.

"Life in the Thirteen Colonies," by Edward Eggleston, separate illustrated papers on subjects connected with the early history of this country.

Three stories by Henry James, of varying lengths, to appear through the year.

The New Astronomy, untechnical articles, by Prof. S. P. Langley, describing the most interesting of recent discoveries in the sun and stars.

A Novelette by H. H. Boyesen, author of "Gunnar," etc. A vivid and sparkling story.

The New Era in American Architecture, a series of papers descriptive of the best work of American architects in Public Buildings, City and Country Houses, etc. To be profusely illustrated.

A Novelette by Robert Grant, author of "Confessions of a Frivolous Girl," etc., entitled "An Average Man," a story of New York.

The Bread-winners, one of the most remarkable novels of the day, to be completed in January.

Christianity and Wealth, with other essays, by the author of "The Christian League of Connecticut," etc., on the application of Christian morals to the present phases of modern life.

Coasting About the Gulf of St. Lawrence, a series of entertaining articles, profusely illustrated.

Scenes from the novelists, Hawthorne, George Eliot and Cable, with authentic drawings.

On the Track of Ulysses, the record of a yacht-cruise in the Mediterranean, identifying the route of Ulysses on his return from the Trojan war.

"Garfield in England," extracts from the private journal kept during a trip to Europe in 1867.

"The Silverado Squatters," by Robert Louis Stevenson, author of "New Arabian Nights."

There will be papers on outdoor England by John Burroughs and others, a beautiful illustrated series on Dante, a number of papers by the eminent French novelist Alphonse Daudet, articles on art and archæology by Charles Dudley Warner and other illustrated papers on sport and adventure, short stories by the leading writers, essays on timely subjects, etc., etc.

Subscription price, $4.00 a year; single numbers sold everywhere, at 35 cents each. All dealers receive subscriptions, or remittance may be made direct to the publishers by postal or express order, registered letter, bank check, or draft.

Special Offers. To enable new subscribers to begin with the first volume under THE CENTURY name, we make the following special offers; *New subscribers beginning with November*, 1883, *may obtain the magazine one year from date, and the twenty-four previous numbers, unbound, for* $8.00. *Regular price for three years*, $12.00.

Or, if preferred, a subscription and the twenty-four numbers BOUND IN FOUR ELEGANT VOLUMES will be furnished for $10. Regular price, $16. THE CENTURY CO., NEW YORK, N. Y.

St. Nicholas: the Leading Magazine for Boys and Girls. Edited by Mrs. Mary Mapes Dodge.—The New York *Tribune* once said: "In the avalanche of immoral literature that threatens the children, some strong, vitally wholesome, and really attractive magazine is required for them, and ST. NICHOLAS has reached a higher platform, and commands for this service wider resources in art and letters, than any of its predecessors or contemporaries." The reference to the wide resources in art and letters commanded by ST. NICHOLAS was never more fully illustrated than by the extraordinary list of attractions which that magazine announces for 1884. The following will be some of the leading contributors:

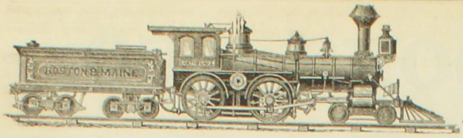
Louisa M. Alcott, J. T. Trowbridge, Captain Mayne Ried, Hjalmar Hjorth Boyesen, Maurice Thompson, Frank R. Stockton, Charles Dudley Warner, Joaquin Miller, Elizabeth Stuart Phelps, Mrs. A. D. T. Whitney, Julian Hawthorn, Celia Thaxter, Mary Mapes Dodge, Lieut. Frederick Schwatka, Rose Hawthorne Lathrop, E. S. Brooks, George W. Cable, Chas. G. Leland, Susan Fenimore Cooper, John G. Whittier, "H. H.," W. O. Stoddard, C. P. Cranch, and scores of other distinguished writers. The best artists and engravers illustrate the magazine. It has been truly said that the reading of ST. NICHOLAS is "a liberal education" for the boys and girls who are fortunate enough to have it. In no other book or periodical is instruction so happily blended with recreation and amusement.

St. Nicholas Christmas Number.—In accordance with their custom, the editors of ST. NICHOLAS have made of the December issue a specially brilliant holiday number, superbly illustrated and enriched with the contributions of the best writers of America. It contains nearly one hundred engravings, including a frontispiece printed in colors. The illustrations accompanying an article on the celebrated French painter of child pictures, Edouard Frère, are among the most beautiful ever engraved for a young folks' magazine. Mayne Reid's serial story begins in this number, and there are fairy stories by Frank R. Stockton and Julian Hawthorne, and scores of other good things. Subscription price, $3 a year, 25 cents a number. All dealers sell it. THE CENTURY CO., NEW YORK N. Y.

Employment.

Advertisements will be inserted under this heading for one dollar for each insertion.

WANTED.—By a first-class competent man, a position to take charge of a Boiler-Shop. Locomotive Work preferred. Address J. T. Connelly, Patentee of the Improved Locomotive Boiler, Box 282, Lima, Ohio.



MANCHESTER LOCOMOTIVE WORKS,

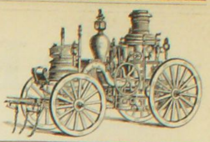
MANUFACTURERS OF

LOCOMOTIVES,

AND THE

AMOSKEAG STEAM FIRE-ENGINE.

JOHN A. BURNHAM, President. WM. G. MEANS, Treas., Boston, Mass.
ARETAS BLOOD, Agent, Manchester, N. H.



HINKLEY LOCOMOTIVE COMPANY,

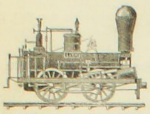
BOSTON, MASS.,

MANUFACTURERS OF

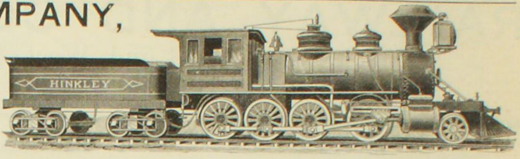
LOCOMOTIVE ENGINES

FOR ALL GAUGES.

Best workmanship and interchangeability of parts guaranteed.



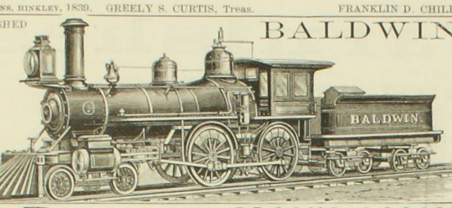
LION, 10 TONS, HINKLEY, 1839.



CONSOLIDATION, 52 TONS, HINKLEY LOCOMOTIVE COMPANY, 1882.

GREELY S. CURTIS, Treas. FRANKLIN D. CHILD, Supt.

ESTABLISHED 1831.



BALDWIN LOCOMOTIVE WORKS,

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BURNHAM, PARRY, WILLIAMS & CO., PROPRIETORS,

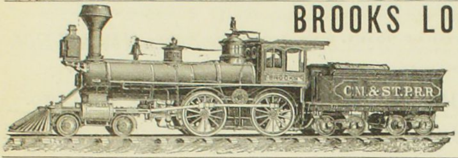
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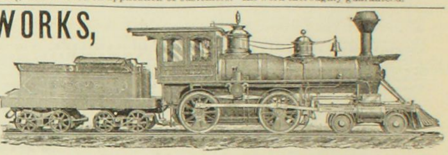
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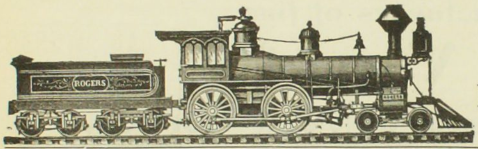
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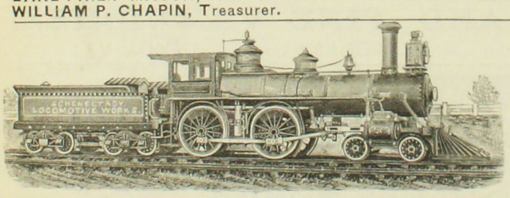
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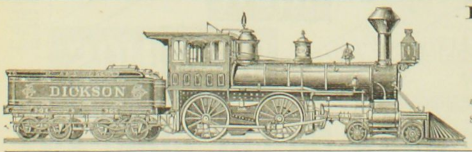
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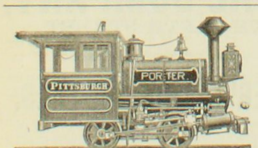
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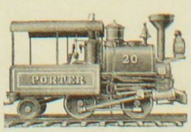
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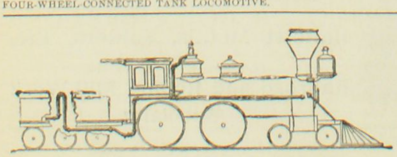
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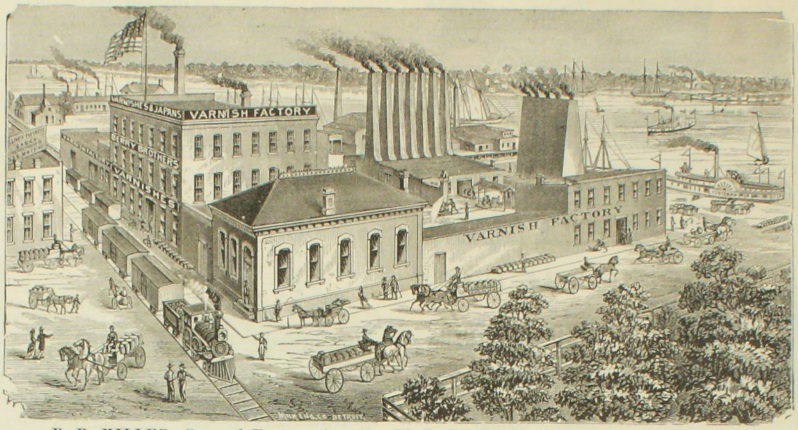


The Ashton Blow-back Safety-valve is constructed so as to conduct the escape steam which is blown off back o the tender, or to the smoke-box and up the chimney. By this arrangement the heat of the escape steam, instead of being wasted as it is when an ordinary safety-valve blows off, is communicated to the cold water in the tender. This not only results in an important economy, but it renders the escaping steam noiseless, and the increase of temperature of the water h°s a tendency to deposit some of its impurities before it is pumped into the boiler. It thus *stops the noise! saves fuel! and al. engines steam better and faster, and do more effective work with these valves* than with those in ordinary use.

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We refer to the Flint & Pere Marquette R. R., which recently fully adopted our device, and to the following:

NEW YORK & GREENWOOD LAKE RAILWAY,
SUPERINTENDENT'S OFFICE, JERSEY CITY, May 22, 1882.

ROBERT HARRIS, ESQ., *Vice Pres't N. Y., L. E. & W. Ry.:*

In accordance with instructions contained in your letter of April 4th, I delivered one combination car and two coaches to the Cowell Platform Company, which they promptly equipped with their patent buffer, since which time the cars have been in constant service.

On Friday, May 19th, the buffers were subjected to a severe test in the presence of several prominent railway officials, and performed all and more than the Cowell Company claimed for them. Matches and toothpicks were placed between the buffers, in order to see if in starting or stopping the buffers would separate enough to let an article so small pass between them. In all these tests the tension kept up to its work and made the platforms continuous. There was no perceptible jerk when starting, and several times a high rate of speed was reached when the engine was reversed, the air applied and a danger stop made without any jar or unpleasant sensation felt other than in making an ordinary station stop. I feel justified in saying, I believe the Cowell Buffer to be a great improvement over any other device I have seen, and should be pleased to have the coaches of the Greenwood Lake Railway Company equipped with this device; believing the saving in the end would justify the expense. J. H. TINNEY, *Acting Supt.*

L. S. & M. S. RY. SUPERINTENDENT'S OFFICE, EASTERN DIVISION,
CHAS. B. COUCH, SUP'T, CLEVELAND, O., April 7, 1882.

J. F. HERRICK, ESQ., *Sec'y and Treas. Cowell Platform and Coupling Co., Cleveland, O.:*

DEAR SIR:—Having witnessed the exhibition of the "Cowell Platform and Buffer," at Cincinnati, March 22d, 1882, will say that in my opinion it is an excellent device. It is a safe and convenient Buffer, keeping the train very steady while in motion, especially over track of uneven surface and curves, there being no "lost motion" between the cars, which prevents the jolting and jarring occasioned by starting and stopping trains, as with the ordinary platform, thus saving much annoyance to passengers.

Yours truly, CHAS. B. COUCH.

S. L. Bell, Conductor on the Western & Atlantic R. R. says: "For two years I have been running a train of cars with your appliance, and I consider it the most practical and the most perfect device in use. It runs a train of cars steadier. I think, if properly managed, it will be a great saving to railroads, and I know affords much more comfort to the traveling public."

G. R. Carr, General Superintendent Columbus, Hocking Valley & Toledo R. R., says: "We prefer it to any in use that I have seen."

R. A. COWELL, ESQ.: MEADVILLE, PA., June 7, 1881.

DEAR SIR:—In reply to your inquiry as to my opinion of your platform, I think it the best in use, and I have seen nearly all of the improvements on railroads, as I have been in the transportation department for twenty-two years. I have been running a train on the N.Y., P. & O. R.R., equipped with your platform, for the past nine months, and I can see no wear as yet. I think it will last as long as the car itself. They certainly can be run at a higher rate of speed with greater safety than any other in use. It prevents that rolling motion at the ends of the coaches; it also prevents the jerking of the train in stopping and starting, which is so unpleasant. In fact, I cannot say too much in its favor. There are a great many good things about it that I have not time or space to mention. Very truly yours, J. W. BABCOCK,
Conductor N. Y., P. & O. R. R.

J. W. Thomas, General Superintendent Nashville, Chattanooga & St. Louis Railway, says:
"A train of two coaches and a baggage car, equipped with your Continuous Platform and Coupler, ha now been in service on our road for over a year, running in our accommodation train 110 miles per day and has given entire satisfaction, costing nothing for repairs during that time."

J. G. Sawyer, Master Car-Builder of the same road, says:
"I have been using your Continuous Platform and Drawhead in three of our cars on the N. C. & St. Louis road for the past ten months. They work in every way to our satisfaction. In that time they have cost the company neither trouble nor expense. I believe them to be a first-rate Platform and Drawhead."
B. V. HOLT, *Conductor.* J. G. SAWYER, *M. C. B.*

R. F. Smith, General Manager Cleveland & Pittsburgh R. R., says: "Your devices have given us entire satisfaction, having proved thoroughly efficient in accomplishing all the objects intended, and with marked economy as to maintenance."

Hiram Fowler, Superintendent Connecticut Valley R. R., says: "The Cowell Patent Platform has given perfect satisfaction."

Gen. P. Pease, of Ohio Central Ry, after seeing the device on the Cincinnati Southern Ry, says: "I was much pleased with the 'Cowell Platform.' For safety and ease in turning abrupt curves, superior to any I have seen."

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H. W. STAGER, Gen. Manager.

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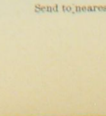
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DIRECTORY

of the Railroads of the United States and Canada, showing the gauge, length of road, number of locomotives and number of cars; and giving the names and titles of their principal officers in charge of the operating, purchasing and rolling stock departments.

A

Adirondack R. R. 4-8½ gauge 60 m. 3 lo. 62 cars.
C. E. Durkee, *Supt*..........Saratoga, N. Y.
Jacob Myers, *M. M*..........Saratoga, N. Y.
Jas. J. Traver, *M. C. B*..........Saratoga, N. Y.
Addison & Northern Penn'a Ry. 3 g. 46 m. 5 lo. 50 c.
F. M. Baker, *Gen. Supt*..........Addison, N. Y.
Alabama Great So'n R. R. (*See Cin., N. O. & T. P.*)
Albany & Susquehanna R. R. (*See D. & H. Canal Co.*)
Albemarle & Raleigh R. R. 4-8½ g. 33 m. 3 lo. 35 c.
P. Dortsch, *Supt*..........Williamstown, N. C.
Albert Ry. 4-8½ g. 51 m. 3 lo. 35 cars.
G. A. Robinson, *Man. & Pur. Agt.* Hillsboro, N. B.
Jas. McKay, *M. M. & C. B*..........Hillsboro, N. B.
Alexandria & Fredericksburg Ry. } (*See Penna. R. R.;*
Alexandria & Washington R. R. } (7) *Div.*
Allegheny Valley R. R. 4-9 g. 259 m. 70 lo. 2202 c.
David McCargo, *Gen. Supt. & Pur. Agt.;* and
C. B. Price, *Supt.* (Riv. Div.).....Pittsburg, Pa.
A. A. Jackson, *Supt.* (L. G. Div.). Reynoldsville, Pa.
Geo. W. Glass, *M. M*..........Verona, Pa.
R. Gunning, *M. C. B*..........Verona, Pa.
Alliance, Niles & Ashtabula R. R. (*See Penna. Co.*)
Annapolis & Elk Ridge R. R. 4-8½ g. 20 m. 4 lo. 29 c.
W. H. Bians, *Supt. & Pur. Agt*..Annapolis, Md.
John L. Beall, *M. Mach*..........Annapolis, Md.
Antwerp & Paulding R. R. 4-8½ g. 6 m. 4 lo. 63 c.
E. C. Munson, *Gen. Man*..........Antwerp, O.
William Fitzsimmons, Jr., *Pur. Agt.* Antwerp, O.
Arkansas Midland R. R. 3-6 g. 63 m. 4 lo. 45 cars.
A. H. Johnson, *Pr. & Gen. Man*...Helena, Ark.
J. B. Johnson, *M. M. & M. C. B*...Helena, Ark.
Asheville & Spartanburg R. R. 5 g. 49 m. 2 lo. 12 c.
Jas. Anderson, *Supt. & Pur. Agt*..Spart'b'g, S. C.
Wm. Platt, *M. M*..........Spartanburg, S. C.
W. B. Brown, *M. C. B*..........Spartanburg, S. C.
Ashland Coal & Iron Ry. 4-8½ g. 22 m. 7 lo. 432 c.
Douglas Putnam, Jr., *Gen. Supt*..Ashland, Ky.
Robt. Peebles, *Pur. Agt*..........Ashland, Ky.
E. M. Roberts, *M. M*..........Ashland, Ky.
Ashtabula & Pittsburgh Ry. (*See Penna. Co.*)
Atchison, Topeka & Santa Fé R. R.
4-8½ g. 2,620 m. 348 lo. 9,629 cars.
A. E. Touzalin, *Gen. Man*..........Topeka, Kan.
Geo. B. Harris, *Gen. Man. Asst*...Topeka, Kan.
A. A. Robinson, *Gen. Supt*..........Topeka, Kan.
Geo. Hargraves, *Pur. Agt*..........Topeka, Kan.
Geo. Hackney, *Supt. Lo. & Car. Dept.* do.
Clem. Hackney, *Asst. Sup. L. & C. Dept.* do.
Eastern Div.: D. J. Chase, *Supt*...Topeka, Kan.
Henry Hull, *G. F. Car Dept*.....Topeka, Kan.
John Fagan, *M. M*..........Atchison, Kan.
J. M. Smith, *M. M*..........Kansas City, Mo.
Alfred Taylor, *M. M*..........Emporia, Kan.
Mid. Div.: H. R. Nickerson, *Supt.* Nickerson, Kan.
W. Y. Johnson, *M. M*..........Nickerson, Kan.
J. Q. Adams, *M. M*..........Dodge, Kan.
W. Div.: W. W. Borst, *Supt*..........La Junta, Col.
A. C. Stiles, *M. M*..........La Junta, Col.
D. H. Dotterer, *M. M*..........Raton, N. M.
So. Div.: Geo. L. Sands, *Supt*.....Las Vegas, N. M.
L. H. Waugh, *M. M*..........Las Vegas, N. M.
J. H. Holman, *M. M*..........Wallace, N. M.
J. W. Sager, *M. M*..........San Marcial, N. M.
H. P. Olcott, *M. M*..........Deming, N. M.
Sonora Div.: 265 m.
Asst. Gen. Man. Guaymas, Mex.
Kan. Cy., Law. & So. Kan.
4-8½ g. 399 m. 24 lo. 787 c.
J. L. Barnes, *Supt*..........Lawrence, Kan.
T. D. Volk, *M. M*..........Ottawa, Kan.
Atlanta & West Point R. R. (*See Western of Ala.*)
Atlantic & North Carolina R. R. (*See Midland; N. C.*)
Atlantic, Tenn. & Ohio R. R. (*See Rich. & Dan.; (2) Div.*)
Atlantic & Pacific R. R. 4-8½ g. 575 m.
F. W. Smith, *G. Supt. & P. A*..Albuquerque, N. M.
Geo. Chalender, *Supt. M. P. & M.*, and
Geo. Chalender, *Div. Supt*..Albuquerque, N. M.
D. Hardy, *Div. Supt*..........Williams, Ariz.
Augusta & Knoxville R. R. (*See Port Royal & Aug.*)
Austin & Northwestern R. R. 3 g. 60 m. 4 lo. 86 c.
H. W. McNeill, *Gen. Man*..........Austin, Tex.

B

Bachman Valley R. R. (*See Han. Junc., Han. & Gett.*)
Baltimore & Hanover R. R. (*See H. J., H. & G.*)
Baltimore & Ohio R. R.
4-8½ g. 1,612 m. 571 lo. 15,897 cars.
S. Spencer, *2d V. P. & Gen. Man.* Baltimore, Md.
N. S. Hill, *Pur. Agt*..........Baltimore, Md.
E. Ohio Riv. Div. 4-8½ g. 972 m.
W. M. Clements, *Mast. Trans*...Baltimore, Md.
A. J. Cromwell, *Act. M. of M*...Baltimore, Md.
L. Packard, *M. C. B*..........Baltimore, Md.
I. N. Kalbaugh, *M. M*..........Baltimore, Md.
Wm. Edwards, *M. M*...Martinsburg, W. Va.
Sam. Houston, *M. M*..........Piedmont, W. Va.
Robert Maxwell, *M. M*.......Cumberland, Md.
S. B. Crawford, *M. M*..........Grafton, W. Va.
Alex. Laird, *M. M*.......Parkersburg, W. Va.
Chas. Hirsch, *M. M*..........Wheeling, W. Va.
Pitts. Div.: T. M. King, *Gen. Supt*...Pittsburg, Pa.
J. E. Sampsell, *Ast. M. of M.* Connellsville, Pa.
Trans-Ohio Divs.: O. Smith, *G. Man*.....Newark, O.
W. H. Harrison, *Asst. M. of Mach*..Newark, O.
E. L. Weisgerber, *M. M*..........Newark, O.
H. M. Ingler, *M. M*..........Bellaire, O.
O. B. Perkins, *M. M*..........Zanesville, O.
Andrew Beckert, *M. M*..........Sandusky, O.
F. J. Gunther, *M. M*.....Chicago Junction, O.
Chi. Div.: *Gen. Supt*...Chicago, Ill.
Benj. Lowther, *M. M*..........Garrett, Ind.
W. H. Wilkinson, *M. M*..........Kingston, Ill.
Baltimore & Philadelphia. 4-8½ g. 20 m. 4 lo. 35 c.
D. Connell, *Supt*..........Wilmington, Del.
Baltimore & Potomac R. R. (*See Penna. R. R.; (7) Div.*)
Bangor & Piscataquis R. R. 4-8½ g. 63 m. 4 lo. 87 cars.
Arthur Brown, *Supt. & Pur. Agt*..Bangor, Me.
C. S. Nason, *M. M*..........Bangor, Me.
J. W. Comins, *M. C. B*..........Oldtown, Me.
Bangor & Portland Ry. 4-8½ g. 25 m. 3 lo. 3 c.
C. Miller, *Pres*..........Blairstown, N. J.
Barclay R. R. 4-8½ g. 16 m. 6 l. 200 c.
F. F. Lyon, *Supt*..........Barclay, Pa.
J. A. Hardenburg, *Pur. Agt*..21 Cort. st., N. Y.
Wm. Johnson, *M. M*..........Towanda, Pa.
Batesville & Brinkley R. R. 3 g. 25 m. 2 lo. 34 c.
Wm. Black, *Pres. & Gen. Supt*..Brinkley, Ark.
W. J. Thompson, *Gen. Man*..Little Rock, Ark.
R. B. Davis, *Pur. Agt*..........Brinkley, Ark.
John White, *M. M*..........Brinkley, Ark.
Baton Rouge, Grosse Tête & Opelousas R. R.
5-6 g. 29 m. 3 lo. 12 c.
D. C. Montan, *Gen. Supt*..........Port Allen, La.
Bedford & Bloomfield Ry. 3 g. 43 m. 5 lo. 65 cars.
Jas. W. Kennedy, *Gen. Supt. & Pur. Agt.;* and
Capt. Geo. Elliott, *M. M*..........Bedford, Ind.
Richard G. Elliott, *M. C. B*..........Bedford, Ind.
Bellaire, Zanesville & Cin. Ry. Co. 3 g. 42 m. 5 lo. 71 c.
S. L. Mooney, *Gen. Supt*..........Woodsville, O.
J. B. Hong, *M. M*..........Bellaire, O.
Bell's Gap R. R. 3 g. 23 m. 4 lo. 148 cars.
R. G. Ford, *Supt*..........Bellwood (P. O.), Pa.
A. Zimmerman, *M. C. B*..........Bellwood, Pa.
Belt R. R. 4-8½ g. 12 m. 10 lo.
W. P. Ijams, *Supt*..........Indianapolis, Ind.
Bennington & Rutland Ry. 4-8½ g. 59 m. 10 lo. 236 c.
F. C. White, *Supt. & Pur. Agt*..Bennington, Vt.
G. W. Blanchard, *M. M*..........Rutland, Vt.
Berlin Branch R. R. (*See Han. Junc., Han. & Gett.*)
Bingham, Canyon & Camp Floyd (*See Den. & Rio Gr.*)
Bladen, Columbus & Florida. 4-8½ g. 16 m. 2 lo. 2 c.
John Colville, *Pres*..........Wilmington, N. C.
Bodie Lumber Co. 3 g. 34 miles.
Thomas Holt, *Supt. & Pur. Agt*.....Bodie, Cal.
E. M. Luckett, *M. M. & C. B*..........Bodie, Cal.
Boston, Barre & Gardner. 4-8½ g. 36 m. 8 lo. 108 c.
H. M. Witter, *G. Man. & P. A*..Worcester, Mass.
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4-8½ g. 167 m. 40 lo. 1,116 cars.
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Whitefield & Jefferson Div.:
A. L. Brown, *Supt*..........Whitefield, N. H.
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4-8½ g. 87 m. 18 lo. 1,038 cars.
H. L. Morrill, *Gen. Man*.......Saratoga, N. Y.
J. H. Wilder, *Pur. Agt*.....Mechanicville, N. Y.
C. H. Cory, *Supt. & M. M*..Mechanicville, N. Y.
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C. A. Hammond, *Supt. & P. Agt.* Boston, Mass.
J. L. Folsom, *M. M*..........Boston, Mass.
John Coghlan, *M. C. B*..........Boston, Mass.
Boston, Winthrop & Point Shirley R. R.
3 g. 10 m. 1 lo. 8 c.
C. A. Parks, *Gen. Supt*..........Boston, Mass.
J. W. Davis, *M. M*..........Boston, Mass.
Boston & Albany R. R. 4-8½ g. 372 m. 245 lo. 6,111 c.
W. H. Barnes, *Gen. Supt*..........Boston, Mass.
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J. B. Weston, *For. Car Sh.* Springfield, Mass.
W. H. Russell, Jr., *Div. Supt.* E. Albany, N. Y.
T. B. Purvis, *Div. M. M*...East Albany, N. Y.
J. E. Doran, *For. Car Sh*..East Albany, N. Y.
Boston & Lowell R. R.
4-8½ g. 140 m. 73 lo. 1,231 cars.
C. H. Mellen, *Supt*..........Boston, Mass.
F. H. Nourse, *Pur. Agt*..........Boston, Mass.
J. F. Crockett, *Supt. T. & Mach*..Boston, Mass.
Boston & Maine R. R. 4-8½ g. 206 m. 89 lo. 2,100 c.
J. T. Furber, *Gen. Supt. & P. A*..Boston, Mass.
Geo. J. Fisher, *Pur. Agt*..........Boston, Mass.
Wm. Smith, *M. M*..........Boston, Mass.
D. C. Richardson, *M. C. B*.....Lawrence, Mass.
Boston & N. Y. Air Line R. R. (*See N. Y., N. H. & H.*)
Boston & Providence R. R. 4-8½ g. 67 m. 52 lo. 1,006 c.
A. A. Folsom, *Gen. Supt. & P. A.* Boston, Mass.
Geo. Richards, *M. M*..........Roxbury, Mass.
Jno. Lightner, *M. C. B*..........Roxbury, Mass.
Bowling Green R. R. 4-8½ g. 6 m. 2 lo. 4 c.
Wm. A. Wiggins, *Gen. Man.* Bowling Green, O.
D. W. H. Day, *Pur. Agt*...Bowling Green, O.
Bradford, Bordell & Kinzua R. R. 3 g. 42 m. 6 lo. 82 c.
Bradford, Eldred & Cuba. 3 g. 54 m. 6 l. 158 c.
Tonawanda Valley & Cuba. 3 g. 60 m. 6 lo. 31 c.
B. C. Williams, *Gen. Man. & P. A*..Brad'fd, Pa.
Jno. Delaney, *M. M. & C. B*......Bradford, Pa.
Brattleboro' & Whitehall R. R. 3 g. 36 m. 3 lo. 56 c.
(*Operated by Central Vermont.*)
Breakwater & Frankford R. R. (*See Del., Md. & Va.*)
Bridgton & Saco River R. R. 2 g. 16 m. 2 lo. 19 c.
Geo. E. Mansfield, *Gen. Supt*....Bridgton, Me.
M. M. Caswell, *M. M*..........Bridgton, Me.
Brighthope Ry. 3 g. 37 m. 4 lo. 193 cars.
Jas. R. Worth, *Supt*..........Richmond, Va.
E. B. Thaw, *Pur. Agt*..........Richmond, Va.
A. Gary, *Supt. Way & Works.* Winterpock, Va.
Alex. Calder, *M. M*..........Chester, Va.
Brooklyn, Bath & Coney Island R. R.
4-8½ g. 7 m. 6 lo. 36 cars.
Geo. A. Gunther, *Gen. Man*...Brooklyn, N. Y.
Isaac G. Ring, *M. M*..........Brooklyn, N. Y.
Brooklyn, Flatbush & Coney Island Ry.
4-8½ g. 7 m. 7 lo. 54 c.
Robert White, *Supt*..........Brooklyn, N. Y.
Brooklyn & Rockaway Beach R. R.
4-8½ g. 3 m. 2 lo. 18 cars.
Wm. Warner, *Supt*.....East New York, N. Y.
Brunswick & Western R. R. 5 g. 172 m. 13 lo. 170 c.
H. S. Morse, *Gen. Man*..........Brunswick, Ga.
R. D. Meader, *Supt*..........Brunswick, Ga.
W. K. Wallace, *Pur. Agt*..........Brunswick, Ga.
Buff., N. Y. & Phil. R. R. 3 & 4-8½ g. 655 m. 120 l. 6,339 c.
Oliver Watson, *Gen. Man*..........Buffalo, N. Y.
Geo. S. Gatchell, *Gen. Supt*.....Buffalo, N. Y.
W. W. Halsey, *Asst. to G. Supt*..Buffalo, N. Y.
J. H. Poole, *Pur. Agt*..........Buffalo, N. Y.
Allen Vail, *Supt. M. P. & M*.....Buffalo, N. Y.
Buff. Div.: J. T. Gardiner, *Supt*....Buffalo, N. Y.
Roch. Div.: R. M. Patterson, *Supt.* Rochester, N. Y.
N. G. Div.: J. W. Watson, *Supt*......Olean, N. Y.
Riv. Div.: A. Vandivort, *Supt*....New Castle, Pa.
Pitts. Div.: E. H. Witter, *Supt*......Oil City, Pa.
H. J. Bookhammer, *M. M*..........Oil City, Pa.
John Monks, *M. C. B*..........Oil City, Pa.
Burlington, Cedar Rapids & Northern Ry.
4-8½ g. 713 m. 76 lo. 2,813 cars.
C. J. Ives, *Gen. Supt*..........Cedar Rapids, Ia.
Robt. Williams, *Supt*..........Cedar Rapids, Ia.
T. Stickney, *Pur. Agt*..........Cedar Rapids, Ia.
R. W. Bushnell, *M. M. & C. B.* Cedar Rapids, Ia.
Burlington & Lamoille R. R. 4-8½ g. 35 m. 4 lo. 64 c.
G. L. Linsley, *Gen. Man. & Supt.* Burlington, Vt.
F. G. Brownell, *M. M., M. C. B. & P. A.* do.
Burlington & Mo. Riv. R. R. (in Neb.) (*See C. B. & Q.*)
Burlington & North-West'n Ry. 3 g. 38 m. 3 lo. 97 c.
Burlington & Western R. R. 3 g. 15 m. 38 c.
John T. Gerry, *Supt*..........Burlington, Ia.
Burlington & Ohio River R. R. 4-8½ g.
R. Tanner, *Pur. Agt*..........Chicago, Ill.

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California Northern R. R. 4-8½ g. 26 m. 2 lo. 17 c.
Andrew J. Binney, *Gen. Man*..Marysville, Cal.
California Southern R. R. 4-8½ g. 127 m. 13 lo. 301 c.
J. N. Victor, *Supt*..........National City, Cal.
Berkley Powell, *Mech. Supt*..National City, Cal.
Cambridge & Seaford. (*See Penna. R. R.; (4) Div.*)
Camden & Atlantic R. R. (*See Penna. R. R.; (2) Div.*)
Canada Southern Ry. (*See Mich. Cen.; (2) Div.*)
Canada & Atlantic Ry. 4-8½ g. 80 m.
D. C. Linsley, *Man*..........Ottawa, Ont.
Canadian Pacific R. R. 4-8½ g. 1,742 m. 118 l. 2,726 c.
W. C. Van Horne, *Gen. Man*....Montreal, Que.
W. R. Baker, *Asst. Gen. Man*..Winnipeg, Man.
K. Blackwell, *Mech. Supt*..........Montreal, Que.
T. W. Shaughnessy, *Pur. Agt*...Montreal, Que.
E. Div.: Archer Baker, *Gen. Supt.* Montreal, Can.
Tho. Irwin, *Mech. Supt*..........Brockville, Ont.
W. Div.: J. M. Egan, *Gen. Supt*..Winnipeg, Man.
F. C. Butterfield, *M. M. & M. C. B.* Winnipeg, Man.
Cape F'r & Yadkin Val. R. R. 4-8½ g. 47 m. 4 lo. 44 c.
J. S. Morrison, *Gen. Supt*....Fayetteville, N. C.
Isaac W. Clark, *M. M. & C. B*..Fayetteville, N. C.
Cape Girardeau Southwestern Ry.
4-8½ g. 33 m. 3 lo. 20 cars.
Louis Houck, *Gen. Man*..Cape Girardeau, Mo.
W. A. Penney, *Gen. Supt*..Cape Girardeau, Mo.
W. H. Wheeler, *Pur. Agt.* Cape Girardeau, Mo.
Fred Glover, *M. M*..........Cape Girardeau, Mo.
Carolina Central R. R. (*See Ral. & Aug.*)
Carson & Colorado R. R. (*See Va. & Truckee*).
Catasauqua & Fogelsville. 4-8½ g. 25 m. 6 lo. 581 c.
C. W. Chapman, *Supt. & P. A.* Catasauqua, Pa.
J. Thomas, *M. M*..........Hokendauqua, Pa.
Chas. J. Holbach, *M. C. B*.....Catasauqua, Pa.
Catskill Mountain R. R. 3 g. 15 m. 2 lo. 26 cars.
Charles A. Beach, *Supt*..........Catskill, N. Y.
Cazenovia, Canastota & De Ruyter. (*See U., I. & E.*)
Central and South-Western Railroads (Ga.).
5 g. 1,115 m. 145 lo. 2,008 cars.
W. G. Raoul, *Pres*..........Savannah, Ga.
Wm. Rogers, *Gen. Supt*..........Savannah, Ga.
C. H. Carson, *Pur. Agt*..........Savannah, Ga.
Cen. Div.: D. D. Arden, *M. M*......Savannah, Ga.
, *M. M*..........Augusta, Ga.
F. Devine, *M. C. B*..........Savannah, Ga.
So.-West'n Div.: T. D. Kline, *Supt*.....Macon, Ga.
D. M. Gugel, *M. M*..........Macon, Ga.
James A. Knight, *M. C. B*..........Macon, Ga.
Central R. R. of N. J. (*See Phil. & Read.; N. J. Cen. Div.*)
Central R. R. of S. C. (*See Wil. & Wel.*)
Central American & Pacific Ry. 3 g. 67 m. 1 lo. 11 c.
W. C. Fitzsimmons, *Gen. Supt*..Escuintla, Guat.

Central Branch Union Pac. (*See Mo. Pac.; (3) Div.*)
Central Iowa Ry. 4-8½ g. 412 m. 50 lo. 1,959 cars.
C. E. Dudley, *Gen. Supt*......Marshalltown, Ia.
D. P. Phelps, *Asst. Gen. Sup*..Marshalltown, Ia.
W. R. Coppock, *Asst. Pur. Agt.* Marshalltown, Ia.
John Player, *M. M*..........Marshalltown, Ia.
T. L. Seevers, *M. C. B*..........Marshalltown, Ia.
Central Ontario Ry. 4-8½ g. 33 m. 4 lo. 66 cars.
G. W. McMullen, *Gen. Man*..........Picton, Ont.
James Falconar, *M. M*..........Trenton, Ont.
Central Pac. R. R. 4-8½ g. 4,303 m. 382 lo. 11,260 c.
A. N. Towne, *Gen. Man*....San Francisco, Cal.
J. A. Fillmore, *Gen. Supt*...San Francisco, Cal.
R. H. Pratt, *A. G. Supt*....San Francisco, Cal.
J. R. Watson, *Gen. Pur. Agt*..Sacramento, Cal.
A. J. Stevens, *Gen. M. M*.....Sacramento, Cal.
W. McKenzie, *Asst. G. M. M*..Sacramento, Cal.
Benj. Welch, *Gen. M. C. B*....Sacramento, Cal.
G. J. Turner, *Asst. G. M. C. B.* Sacramento, Cal.
Western: Visalia & Tulare Divs. and Northern Ry.
A. D. Wilder, *Supt*..........W. Oakland, Cal.
G. D. Welch, *M. M.* (W. Div.) W. Oakland, Cal.
W. B. Ludlow, *M. C. B.* (W. Div.) do.
S. Johnson, *M. M.* (T. Div.).......Tulare, Cal.
D. Rutherford, *M. M.* (N. Rd.). S. Vallejo, Cal.
Sacramento: Oregon Divs.; and Cal. Pac. R. R.
J. B. Wright, *Supt*..........Sacramento, Cal.
M. W. Cooley, *M. M.* (*S. Div.*) Sacramento, Cal.
Truckee Div.: J. H. Whited, *Supt.* Wadsworth, Nev.
Geo. Gregg, *M. M*..........Wadsworth, Nev.
Wm. McPherson, *F. Car Sh*..Wadsworth, Nev.
Humb't Div.: G. W. Coddington, *Supt.* Carlin, Nev.
W. F. Smith, *M. M*..........Carlin, Nev.
J. C. Doughty, *For. Car Sh*..........Carlin, Nev.
Salt Lake Div.: A. G. Fell, *Supt*.....Ogden, Utah.
James Lamb, *M. M*..........Terrace, Utah.
A. Sherburne, *For. Car Sh*......Ogden, Utah.
Colorado Div.: C. B. Seymour, *Supt.* Needles, Cal.
St. & Cop. R. R.: R. L. Myrick, *Supt*..Stockton, Cal.
Los Angeles; and Yuma Divs. (So. Pac.):
E. E. Hewitt, *Asst. Supt*....Los Angeles, Cal.
James Velsir, *M. M*..........Los Angeles, Cal.
T. T. Gilleland, *For. Car Sh.* Los Angeles, Cal.
Arizona Divs. (So. Pac.):
A. A. Bean, *Asst. Supt*..........Tucson, Ariz.
W. F. Smith, *M. M*..........Tucson, Ariz.
Rio Grande (S. Pac.) & El Paso (G. H. & S. A.) Divs.:
J. Campbell, *Ass't Supt*..........El Paso, Texas.
J. L. Bonner, *M. M*..........El Paso, Texas.
H. C. Standish, *For. Sh*.....El Paso, Texas.
Galveston, Harrisburg & San Antonio Ry.
E. G. Thompson, *Supt*..........Houston, Tex.
San Anto. Div.: W. G. Van Vleck, *Supt.*, and
J. J. Ryan, *M. M*..........San Antonio, Tex.
Houston Div.: H. Flanders, *Supt*..Harrisburg, Tex.
D. T. Davis, *M. M*..........Harrisburg, Tex.
Louisiana Div.: W. Irwin, *Supt*.....Houston, Tex.
D. C. Smith, *M. M*..........Houston, Tex.
J. M. Mather, *M. C. B*..........Houston, Tex.
Central Texas & N'w'n R. R. (*See Hous. & Tex. Cen.*)
Central Vermont R. R. 4-8½ g. 673 m. 136 lo. 2,789 c.
J. W. Hobart, *Gen. Man*..........St. Albans, Vt.
J. M. Foss, *Asst. Gen. Supt. & M. M.* St. Albans, Vt.
No. Div.: I. B. Futvoye, *Supt*.....St. Johns, P. Q.
Rut. Div.: J. Burdett, *Supt*..........Rutland, Vt.
N. L. Davis, *M. M. & C. B*..........Rutland, Vt.
Brattleboro & Whitehall R. R., and
Brat. Div.: E. F. Brooks, *Supt*...Brattleboro, Vt.
New London No'n R. R. 143 m. 22 lo. 303 c.
C. F. Spaulding, *G. Supt. & P. A.* New London, Ct.
I. W. Dow, *M. M*..........New London, Ct.
S. O. Banks, *M. C. B*..........New London, Ct.
Chagrin Falls & Southern R. R. 3 g. 6 m. 1 lo. 12 c.
W. Hutchings, *Gen. Man*.....Chagrin Falls, O.
J. W. Williams, *Gen. Supt*....Chagrin Falls, O.
Charleston & Savannah Ry. 5 g. 115 m. 17 lo. 108 c.
H. S. Haines, *Gen. Man*..........Savannah, Ga.
C. S. Gadsden, *Gen. Supt*.....Charleston, S. C.
H. A. Ulmo, *M. M*..........Savannah, Ga.
Charlotte, Columbia & Augusta R. R. (*See Rich. & D.*)
Chateaugay R. R. 3 g. 34 m. 6 lo. 312 cars.
A. L. Inman, *Gen. Man*..........Plattsburg, N. Y.
F. N. Corbin, *Supt*..........Plattsburg, N. Y.
J. M. Davis, *M. M*..........Plattsburg, N. Y.
Chattaroi Ry. 4-8½ g. 51 miles 11 loco. 483 cars.
C. H. Rockwell, *Gen. Man. & P. A.* Ashland, Ky.
J. R. Martin, *M. M*..........Ashland, Ky.
Joseph P. Burleigh, *M. C. B*..........Ashland, Ky.
Cheraw & Chester R. R. (*See Rich. & Dan.; (2) Div.*)
Cheraw & Darlington R. R. (*See Wil. & Wel.*)
Cheraw & Salisbury R. R. (*See Wil. & Wel.*)
Cherokee R. R. (*See East & West.*)
Cherry Valley R. R. 4-8½ g. 6 m. 3 lo. 6 cars.
E. T. Herndon, *Supt*..........Midland, Mo.
Chesapeake, Ohio & South-Western.
4-9 g. 398 m. 47 lo. 1,339 c.
D. W. C. Brown, *Gen. Supt*..........Louisville, Ky.
H. E. Huntington, *Pur. Agt*.....Louisville, Ky.
J. E. Reeves, *Mast. Trans*.....Louisville, Ky.
R. H. Briggs, *Supt. M. P*....Elizabethtown, Ky.
D. L. Weaver, *M. M*......Elizabethtown, Ky.
Chas. Daniels, *M. M*..........Paducah, Ky.
Chesapeake & Ohio Ry. 4-8½ g. 642 m. 169 l. 5,120 c.
C. W. Smith, *Gen. Man*..........Richmond, Va.
D. A. Sweet, *Asst. to Gen. Man.* Richmond, Va.
A. H. Wood, *Asst. Gen. Supt.*, Huntington, W. Va.
A. S. Emmons, *Pur. Agt*..........Richmond, Va.
T. L. Chapman, *Supt. M. P*..........Richmond, Va.
Eastern Div.: E. T. Smith, *Supt*..Richmond, Va.
J. N. King, *M. C. B*..........Richmond, Va.
Hunt. Div.: W. B. Ryder, *Supt*....Hinton, W. Va.
W. H. Thomas, *M. M*...Huntington, W. Va.
H. C. Bassinger, *M. C. B.* Huntington, W. Va.
Lex. Div.: J. D. Yarrington, *Supt*..Lexington, Ky.
S. R. Tuggle, *M. M*..........Lexington, Ky.
Cheshire R. R. 4-8½ g. 80 m. 30 lo. 522 cars.
R. Stewart, *Gen. Man*..........Keene, N. H.
H. H. Stone, *Pur. Agt*..........Keene, N. H.
F. A. Perry, *M. M*..........Keene, N. H.
A. E. Howard, *M. C. B*..........Keene, N. H.
Chester & Lenoir Ry. (*See Rich. & Dan.; (3) Div.*)
Chicago, Bur. & Kan. City Ry. (*See C. B. & Q.*)
Chicago, Burlington & Quincy R. R.
4-8½ g. 3,608 m. 545 lo. 21,012 cars.
T. J. Potter, *Gen. Man*..........Chicago, Ill.
(1) C., B. & Q., East of Mo. Riv.
H. B. Stone, *Asst. Gen. Man*.....Chicago, Ill.
Wm. Irving, *Gen. Pur. Agt*.......Chicago, Ill.
G. W. Rhodes, *Supt. M. P*..........Aurora, Ill.
Wm. Forsyth, *Mech. Eng*..........Aurora, Ill.
Ill. Divs.: J. D. Besler, *Supt*........Galesburg, Ill.
Chi. Div.: Geo. Alexander, *Supt*.....Aurora, Ill.
L. E. Johnson, *M. M*..........Aurora, Ill.
Galesburg Div.: F. C. Rice, *Supt.* Galesburg, Ill.
Robert Colville, *M. M*..........Galesburg, Ill.
St. L. Div.: S. E. Crance, *Supt*..Beardstown, Ill.
A. Forsyth, *M. M*..........Beardstown, Ill.
Ia. & Mo. Divs.: W. F. Merrill, *Supt.* Burlington, Ia.
East. Div.: O. E. Stewart, *Supt*..Burlington, Ia.
Joel West, *M. M*..........Burlington, Ia.
Mid. Div.: J. B. Maxon, *Supt*.....Ottumwa, Ia.
West'n Div.: W. B. Ryder, *Supt*.....Creston, Ia.
C. W. Eckerson, *M. M*..........Creston, Ia.
Chi., B. & Kan. C'y and St. L., Keo. & No.-W'n Rys.
Robt. Law, *Gen. Supt*..........Keokuk, Ia.
W. H. Bartlett, *M. M*..........Burlington, Ia.
(2) C., B. & Q., West of Mo. Riv.
G. W. Holdrege, *Asst. Gen. Man.* Omaha, Neb.
Jas. M. Barr, *Supply Agt*..........Omaha, Neb.
D. Hawksworth, *M. M*........Plattsmouth, Neb.
Bur. & Mo. Riv. & Neb. Ry. Divs.:
D. E. Thompson, *Supt*..........Lincoln, Neb.
E. Bignal, *M. M*..........Lincoln, Neb.
R. V. Div.: A. Campbell, *Supt*......McCook, Neb.
A. & N. Div.: J. McConniff, *Supt*...Lincoln, Neb.
Chicago, Milwaukee & St. Paul R. R.
4-8½ g. 4,528 m. 626 lo. 19,018 cars.
S. S. Merrill, *Gen. Man*..........Milwaukee, Wis.
J. T. Clark, *Gen. Supt*..........Milwaukee, Wis.
J. T. Crocker, *Pur. Agt*..........Milwaukee, Wis.
J. M. Lowry, *Gen. M. M*.......Milwaukee, Wis.
E. Fairbairn, *M. M*..........Milwaukee, Wis.
John Baillie, *Supt. Car Dept*...Milwaukee, Wis.
(1) H. C. Atkins, *Asst. Gen. Supt*..Milwaukee, Wis.
Chi. Div.: Geo. O. Clinton, *Supt*.....Chicago, Ill.
La Crosse Div.: W. G. Collins, *Supt.* Milwaukee, Wis.
C. Bluffs Div.: A. J. Earling, *Supt*....Marion, Ia.

P. du C. & M. Pt. Divs.:
R. B. Campbell, *Supt*..........Milwaukee, Wis.
(2) C. H. Prior, *Asst. Gen. Supt*..Minneapolis, Minn.
H. & D. Div.: M. W. Kellie, *Supt.* do.
J. O. Pattie, *M. M*..........Minneapolis, Minn.
Ia. & Minn. Div.: H. R. Williams, *Supt.* do.
S. Minn. Div.: F. D. Underwood, *Supt.* Lacrosse, Wis.
Riv. & Dub. Divs.: C. W. Case, *Supt.* Dubuque, Ia.
S. Charnley, *M. M*..........Dubuque, Ia.
Ia. & Da. Div.: G. W. Sanborn, *Supt.* Mason City, Ia.
S. Cy. & Da. Div.: J. Jackson, *Supt.* Sioux City, Ia.
F. H. Moulton, *M. M*..........Yankton, Dak.
(3) D. A. Olin, *Asst. Gen. Supt*..........Racine, Wis.
So.-Wn. Divs.: D. L. Bush, *Supt*......Racine, Wis.
John Taylor, *M. M*..........Racine, Wis.
E. A. Eddy, *M. C. B*..........Racine, Wis.
(4) Northern Div.: L. B. Rock, *Supt.* Milwaukee, Wis.
Wm. E. Kittredge, *M. C. B*..Milwaukee, Wis.
Chicago, Pekin & So-Wn. R. R. 4-8½ g. 88 m. 11 lo. 471 c.
A. H. Crocker, *Rec*..........Joliet, Ill.
J. N. Chilson, *M. C. B*..........Streator, Ill.
Chicago, Rock Island & Pac. Ry.
4-8½ g. 1,381 m. 309 lo. 8,367 cars.
R. R. Cable, *V. P. & Gen. Man*....Chicago, Ill.
A. Kimball, *Gen. Supt*..........Chicago, Ill.
H. F. Royce, *Asst. G. Supt*..........Davenport, Ia.
F. A. Marsh, *Pur. Agt*..........Chicago, Ill.
T. B. Twombly, *Gen. M. M*..........Chicago, Ill.
B. K. Verbryck, *Gen. M. C. B*......Chicago, Ill.
Ill. Div.: R. H. Chamberlin, *Supt*.....Chicago, Ill.
R. Biester, *M. M*..........Chicago, Ill.
Sam'l Pullman, *M. C. B*..........Chicago, Ill.
Ia. Divs.: Jno. Given, *Supt*..........Des Moines, Ia.
J. G. Crockett, *M. M*..........Stuart, Ia.
Jas. E. Morrill, *M. M*..........Davenport, Ia.
Chas. M. Leonard, *M. C. B*......Davenport, Ia.
K. & Des. M. Div.: Jno. Given, *Supt*..Des Moines, Ia.
S. W. Wakefield, *M. M*..........Keokuk, Ia.
Henry Kummer, *M. C. B*..........Keokuk, Ia.
So.-Wn. Div.: G. F. Walker, *Supt*....Trenton, Mo.
R. O. Carscadin, *M. M*..........Trenton, Mo.
Chas. R. Best, *M. C. B*..........Trenton, Mo.
Chicago, Saginaw & Canada R. R. (*See Det., L. & N.*)
Chicago, St. Louis & New Orleans R. R. (*See Ill. Cen.*)
Chicago, St. Louis & Pittsburg R. R. (*See Penna. Co.*)
Chicago, St. Paul, Minneapolis & Omaha Ry.
4-8½ g. 1,256 m. 181 lo. 5,221 cars.
J. M. Whitman, *Gen. Supt*......St. Paul, Minn.
W. H. S. Wright, *Pur. Agt*......St. Paul, Minn.
Matt. Ellis, *M. M*..........St. Paul, Minn.
H. L. Preston, *M. C. B*..........Hudson, Wis.
Ea. & No. Div.: A. A. Hobart, *Supt.* St. Paul, Minn.
St. Paul and Sioux City Div.:
H. Spencer, *Supt*..........St. James, Minn.
H. C. Anderson, *Gen. For. Sh*.....Sioux Cy, Ia.
Neb. Div.: Geo. V. Morford, *Supt*....Omaha, Neb.
Chic., Tex. & Mexican Cent. Ry. (*See Gulf, C. & S. F.*)
Chicago & Alton R. R. 4-8½ g. 849 m. 213 lo. 6,168 c.
C. H. Chappell, *Gen. Man*..........Chicago, Ill.
W. F. Merrill, *Gen. Supt*..........Chicago, Ill.
A. V. Hartwell, *Pur. Agt*..........Chicago, Ill.
Wm. Wilson, *Supt. of Mach*...Bloomington, Ill.
Jos. Townsend, *G. For. Car Dept.* do.
Chi. Div.: A. M. Richards, *Supt*..Bloomington, Ill.
St. Louis Div.: S. D. Reeves, *Supt*..Roodhouse, Ill.
Wm. McPhail, *M. M*..........Slater, Mo.
Chicago & Atlantic Ry. 4-8½ g. 269 m.
Gen. Man..........Chicago, Ill.
J. C. Williams, *Gen. Supt*..........Chicago, Ill.
J. F. McPherson, *Pur. Agt*..........Chicago, Ill.
Geo. A. Hill, *M. M. & M. C. B*......Chicago, Ill.
West. Div.: J. H. Parsons, *Supt*....Chicago, Ill.
East. Div.: J. H. Tinney, *Supt*..Huntington, Ind.
Chi. & East'n Ill. 4-8½ g. 252 m. 56 lo. 3,500 cars.
O. S. Lyford, *Gen. Supt*..........Chicago, Ill.
D. R. Patterson, *Pur. Agt*..........Chicago, Ill.
P. W. Drew, *M. Trans*..........Chicago, Ill.
Allen Cooke, *M. M*..........Danville, Ill.
Chicago & Grand Trunk Ry. (*See Grand Trunk.*)
Chicago & Great Southern Ry.
4-8½ g. 124 m. 4 lo. 122 c.
Henry Crawford, *Gen. Man*........Chicago, Ill.
H. Crawford, Jr., *Supt*..........Chicago, Ill.
Chicago & Iowa R. R. 4-8½ g. 104 m. 16 lo. 237 cars.
T. J. Potter, *Gen. Man*..........Chicago, Ill.
W. H. Holcomb, *Gen. Supt*........Rochelle, Ill.
H. S. Bryan, *M. M*..........Aurora, Ill.
Chicago & Northwestern Ry.
4-8½ g. 3,610 m. 558 lo. 18,685 cars.
Marvin Hughitt, *2d V. Prs. & G. M.* Chicago, Ill.
J. D. Layng, *Gen. Supt*..........Chicago, Ill.
W. B. Linsley, *Ass't Gen. Supt*....Chicago, Ill.
R. W. Hamer, *Pur. Agt*..........Chicago, Ill.
Geo. W. Tilton, *Supt. M. P. & M.;* and
J. M. Boon, *A. Supt. M. P. & M*....Chicago, Ill.
Wis. and Mil. Divs. & Sheboygan & W'n Ry.:
Chas. D. Gorham, *Supt*..........Chicago, Ill.
Gal. Div.: Chas. Murray, *Supt*........Chicago, Ill.
Pen'a Div.: W. F. Fitch, *Supt*.....Escanaba, Mich.
Geo. H. White, *M. M*..........Escanaba, Mich.
Mad. Div.: C. A. Swineford, *Supt*..Baraboo, Wis.
Minn. & Dak. Divs.: S. Sanborn, *Asst. Gen. Supt.*
and W. A. Scott, *M. M*..........Winona, Minn.
Dak. Cen. Ry.: J. S. Oliver, *Supt*....Huron, Dak.
Ia. Div.: H. G. Burt, *Supt*..........Boone, Ia.
Geo. W. Lowe, *M. M. & M. C. B.* Clinton, Ia.
No. Ia. Div.: M. Hopkins, *Supt*...Eagle Grove, Ia.
Win. & St. P. Div.: W. P. Cosgrave, *Supt.*
Chicago & West Michigan:
4-8½ g. 409 m. 43 lo. 1,345 cars.
Geo. C. Kimball, *V. P. & G. Man.* Muskegon, Mich.
A. M. Nichols, *Asst. Gen. Supt.* Gd. Rapids, Mich.
Edw. Hill, *Pur. Agt*..........Muskegon, Mich.
W. F. N. Davis, *M. M*..........Muskegon, Mich.
Chicago & West'n Ind. R. R. 4-8½ g. 51 m. 12 lo. 150 c.
James Walsh, *Gen. Man*..........Chicago, Ill.
Cincinnati, Columbus & Hocking Val. Ry.
4-9 g. 25 m. 2 lo. 77 cars.
D. P. Hyatt, *Gen. Man*..........Dayton, O.
Cin., Georgetown & Portsmouth. 3 g. 35 m. 3 lo. 45 c.
M. Simmons, *Supt*..........Cincinnati, O.
J. C. Homer, *M. M*..........Cincinnati, O.
Cin., Green Riv. & Nashville R. R. 3 g. 11 m. 2 l. 41 c.
A. C. Sim, *Supt*..........King's Mountain, Ky.
G. Brashears, *Pur. Agt*..........Cincinnati, O.
Cin., Hamilton & Dayton R. R. 4-9 g. 352 m. 92 l. 2,932 c.
C. J. Hepburn, *Gen. Supt*........Cincinnati, O.
P. Hickey, *Pur. Agt*..........Cincinnati, O.
John Black, *Gen. M. M*..........Lima, O.
W. H. H. Allison, *M. C. B*........Cincinnati, O.
Day. & Mich. Div.: W. F. Stark, *Supt*..Toledo, O.
C. R. & C. Div.: W. S. Brewer, *M. M.* Richm'd, Ind.
Cincinnati, Indianapolis, St. Louis & Chicago Ry.
4-8½ g. 384 m. 71 lo. 3,279 cars.
J. W. Sherwood, *Supt*..........Indianapolis, Ind.
Geo. Tozzer, *Pur. Agt*..........Cincinnati, O.
J. S. Patterson, *M. of Mach. & M. C. B.* Cincinn., O.
Cincinnati, New Orleans & Texas Pacific Ry. Co.
5 g. 846 m. 123 lo. 3,464 cars.
John Scott, *Gen. Man*..........Cincinnati, O.
Richard Carroll, *Gen. Supt*.......Cincinnati, O.
R. W. Healey, *Gen. Pur. Agt*.....Cincinnati, O.
James Meehan, *Gen. M. M*..........Cincinnati, O.
Cin. So. Div.: W. W. Wells, *Supt*..Somerset, Ky.
I. W. Fowle, *M. M*..........Cincinnati, O.
John Richardson, *M. C. B*......Cincinnati, O.
A. Thomson, *M. M*..........Chattanooga, Tenn.
Ala. Gr. S'n Div.: C. B. Wallace, *Supt.*, and
George Manuell, *M. M*....Chattanooga, Tenn.
Fred Morgan, *M. C. B*...Chattanooga, Tenn.
V. & M. Div.: E. F. Raworth, *Supt.*, and
James B. Browne, *M. M*.....Vicksburg, Miss.
V. S. & P. Div.: F. Y. Dabney, *Supt*..Monroe, La.
W. Bell Smith, *M. M. & C. B*....Monroe, La.
New Orleans & North-Eastern R. R.
T. S. Williams, *Supt*........New Orleans, La.
Cincinnati Northern Ry. (*See Tol., Cin. & St. L.*)
Cincinnati, Selma & Mobile R. R. 5 g. 71 m. 6 lo. 148 c.
D. McLaren, *Spt*..........Selma, Ala.
H. L. Wright, *Pur. Agt*..........Selma, Ala.
J. M. Levis, *M. M*..........Marion, Ala.
Cincinnati, Van Wert & Michigan R. R.
4-9 g. 39 m. 4 lo. 64 cars.
E. C. Dawes, *Gen. Supt*..........Cincinnati, O.
Cin., Wabash & Mich. Ry. 4-8½ g. 165 m. 13 lo. 402 c.
Norman Beckley, *Gen. Man. & P. A.* Elkhart, Ind.
O. W. Lamport, *Supt*..........Wabash, Ind.
S. B. Tinker, *M. M. & M. C. B*....Wabash, Ind.

Cin., Wash. & Balt. 4-8½ g. 312 m. 65 lo. 1,422 cars
Jas. H. Stewart, *Gen. Man*.......Cincinnati, O.
Edw. Evans, *M. M*..............Chillicothe, O.
T. G. Duncan, *Supt. Car Dept*.......Zaleski, O.
Cincinnati, Wheeling & New York R.R. 4-8½ g. 13 m.
Thos. R. Sharp, *Pres*..........New York, N. Y.
Cincinnati & Eastern Ry. 3 g. 100 m. 7 lo. 133 cars.
S. Woodward, *Gen. Man*.........Cincinnati, O.
G. H. Wilber, *Gen. Sup. & Pur. Agt*. Cincinnati, O.
P. W. Naughton, *M. M*...........Newtown, O.
Cincinnati & South-Eastern Ry. 4-8½ g. 18 m.
John V. Patton, *Gen. Man*.......Newport, Ky.
Clarksburg, Weston & Glenville R. R.
3 g. 26 m. 3 lo. 45 cars.
A. H. Kunst, *Pres. & Gen. Man*. Weston, W. Va.
Sam. A. Steel, *M. M*...........Weston, W. Va.
F. Dillie, *M. C. B*...........Nottingham, O.
Cleveland, Columbus, Cincinnati & Indiana and Indianapolis & St. Louis Rys. and Dayton & Union R. R. 4-8½ g. 785 m. 246 lo. 7,988 cars.
E. B. Thomas, *Gen. Man*.........Cleveland, O.
J. L. Yale, *Pur. Agt*............Cleveland, O.
W. F. Turreff, *Gen. M. M*........Cleveland, O.
Col. & Cin. Div.: Robt. Blee, *Supt*. Cleveland, O.
W. L. Gilmore, *M. M*...........Cleveland, O.
A. G. Steinbrenner, *G. For. Car Dept*. do.
W. W. Wallace, *Div. M. M*......Delaware, O.
Ind'p'lis Div.: John O. Ewan, *Supt*. Ind'polis, Ind
J. K. Lape, *M. M*.......... Brightwood, Ind.
N. Mark, *G. For. Car Dept*. Brightwood, Ind.
Ind. & St L Ry.: Tho. Burrows, *Supt*. St. Louis, Mo.
T. W. Ranson, *M. M. & C. B*... Mattoon, Ill.
Day. & Un. Rd.: J. H. Barrett, *Supt*. Cincinnati, O
H. S. Gordon, *M. M*.................Dayton, O
Cleveland, Delphos & St. Louis R. R.
3 g. 46 m. 2 lo. 44 cars.
I. H. Burgoon, *Gen. Man*.........Delphos, O.
B. F. Marshall, *M. M*..............Delphos, O.
Cleveland, Indiana & St. Louis R. R.
4-8½ g. 19 m. 2 lo. 20 cars.
J. A. Larned, *Rec. & Supt*.....Anderson, Ind.
Cleveland, Mt. Vernon & Delaware R. R.
4-9 g. 144 m. 22 lo. 751 c.
N. Monsarrat, *Gen Supt*.............Akron, O.
G. M. Taylor, *M. M. & C. B*.....Mt. Vernon, O.
Cleve., Youngstown & Pitts. R. R. 3 g. 30 m. 3 lo. 138 c.
D. T. Lumley, *Gen. Supt*..........Alliance, O.
C. H. Dorman, *M. M. & M. C. B*....Alliance, O.
Cleveland, Lorain & Wheeling Ry.
4-8½ g. 158 m. 31 lo. 1,878 cars.
Oscar Townsend, *Gen. Man*......Cleveland, O.
Wm. Thornburg, *Supt*...............Lorain, O.
W. A. Stone, *M. M*...................Lorain, O.
Cleve. & Marietta R. R. (*See Wheel. & Lake Erie.*)
Cleveland & Pittsburg. (*See Penna. Co.; (4) Div.*)
Clifton & Lordsburg Ry. 20 m.
W. H. Jones, *Gen. Supt. & Pur. Agt*. Lordsb'g N. M.
Clifton & Port Hudson R. R. 4-8½ g. 21 m. 3 lo. 12 c.
C. Corcoran, *Supt*..................Clinton, La.
Ried Blochman, *M. M*..............Clinton La.
Clove Branch R. R. 4-8½ g. 4 m. 1 lo. 59 cars.
C. L. Kimball, *Supt*..........Mattewan, N. Y.
W. G. Vanbuskirk, *M. M*...Dutchess Jc., N. Y.
Coburg, Peterborough & Marmora Ry.
5-6 g. 47 m. 5 lo. 255 cars.
Jas. R. Barber, *Gen. Supt*.......Cobourg, Ont.
Jas. Clark, *M. M*................Cobourg, Ont
John Tinney, *M. C. B*............Cobourg, Ont.
Colorado Central R. R. (*See Un. Pac.; (4) Div.*)
Columbia & Greenville R. R. (*See Rich. & D.; (3) Div.*)
Columbia & Puget Sound R.R. 3 g. 21 m. 7 lo. 114 c.
J. M. Colman, *Gen. Supt*. Seattle, Wash. Ter.
Columbus, Hocking Valley & Toledo Ry.
4-9 g. 324 m. 90 lo. 7,257 cars.
M. M. Greene, *Gen Man*..........Columbus, O.
G. R. Carr, *Gen. Supt*...........Columbus, O.
W. M. Greene, *Pur. Agt*.........Columbus, O.
Ira G. Hutchins, *M. M*...........Columbus, O.
J. M. Rockafield, *M. C. B*.......Columbus, O.
Tol. Div.: M. T. Seymour, *Supt*......Columbus, O.
Hock. V. Div.: M. P. L. Booth, *Supt*. Columbus, O.
Ohio Riv. Div.: C. D. Norris, *Supt*.......Logan, O.
Columbus & Eastern R. R. In progress
J. E. Redfield, *Pres*.............Columbus, Ohio.
Columbus & Maysville Ry. (*See Cin. & East.*)
Columbus & Rome R. R. 3 g. 33 m. 2 lo. 30 cars.
M. E. Gray, *Supt*..................Columbus, Ga.
Columbus & Western Ry. 5 g. 89 m. 2 lo. 53 cars
E. A. Flewellen, *Gen. Man*.......Columbus, Ga.
R. A. Bridges, *M. M*...............Opelika, Ala.
Concord R. R. 4-8½ g. 141 m. 38 lo. 1,235 cars.
H. E. Chamberlain, *Supt. & P. Agt*. Concord, N. H
J. T. Gordon, *M. M. & C. B*.....Concord, N H
Concord & Claremont R. R. (*See Northern of N. H.*
Conn. Riv. and Ver. Val. R. Rs. 4-8½ g. 130 m. 42 lo. 554 c.
J. Mulligan, *Supt. & Pur. Agt*. Springfield, Mass.
W. H. Stearns, *M. M*........Springfield, Mass.
Robert Hitchcock, *M. C. B*...Springfield, Mass.
Conn. & Passumpsic Rivers R. R. (*See Passumpsic.*)
Connotton Valley R. R. 3 g. 160 m. 26 lo. 997 cars.
Samuel Briggs, *Gen. Man*.........Cleveland, O.
B. C. Bosworth, *M. M*.................Canton, O.
Cooperstown & Susquehanna Valley R. R.
4-8½ g. 16 m. 2 lo. 14 cars.
Andrew Shaw, *Pres*.........Cooperstown, N. Y.
A. Mumford, *M. M*..........Cooperstown, N. Y.
Corning, Cowanesque & Antrim Ry. (*See Syr., G. & C.*)
Cornwall R. R. 4-8½ g. 12 m. 5 lo. 166 cars
Frank Donahue, *G. Supt. & M. M*. Lebanon, Pa.
Levi Blonch, *M. C. B*.............Lebanon, Pa.
Coudersport & Port Allegheny R. R.
3 g. 17 m. 2 lo. 50 cars.
B. A. McClure, *Gen. Supt*.....Coudersport, Pa.
Credit Valley Ry. 4-8½ g. 184 m. 22 lo. 535 cars.
Wm. Whyte, *Gen. Supt*............Toronto, Ont.
John Macnab, *Pur. Agt*...........Toronto, Can.
H. G. Taylor, *Mech. Supt*........Toronto, Can.
Crooked Creek R. R. 3 g. 9 m. 1 lo. 37 cars.
Walter C. Willson, *Gen. Man*. Webster City, Ia.
Geo. W. Post, *Pur. Agt*...............Lehigh, Ia.
Crown Point Iron Co. R. R. 3 g. 13 m. 4 lo. 113 c.
A. L. Inman, *Gen. Man*.......Plattsburg, N. Y.
H. L. Reed, *Pur. Agt*.........Crown Point, N. Y.
J. M. Davies, *Supt. & M. M*. Crown Point, N. Y.
J. C. Sherman, *M. C. B*.....Crown Point, N. Y.
Cumberland Ry. 4-8½ g. 32 m. 1 lo. 64 c.
J. A. Killam, *Gen. Man*...........Parsboro, N. S.
K. McKinnon, *M. M*................Parsboro, N. S.
Cumberland Valley R. R. 4-9 g. 125 m. 21 lo. 451 cars.
J. F. Boyd, *Supt*...............Chambersburg, Pa.
A. S. Hull, *M. M*...............Chambersburg, Pa.
C. Wicke, *M. C. B*..............Chambersburg, Pa.
Cumberland & Maurice River R. R. 4-8½ g. 20 m.
L. H. Dowdney, *Supt*.........Port Morris, N. J.
Cumberland & Penn. R. R. 4-8½ g. 55 m. 28 lo. 625 c.
P. L. Burwell, *Gen Supt & P. A*. Cumberland, Md.
N. W. Howson, *Mast. of Mach*. Mt. Savage, Md.
Nathan Binix, *M. C. B*..........Mt. Savage, Md.

D

Danville & New River R. R. 3 g. 43 m. 2 lo. 30 c.
W. T. Sutherlin, *Gen. Man*..........Danville, Va.
J. F. Morton, *M. M*....................Danville, Va.
Danbury & Norwalk R. R. 4-8½ g. 36 m. 7 lo. 112 c.
L. W. Sandiforth, *G. Supt. & P. A*. S. Norwalk, Ct.
N. M. George, *M. M. & C. B*.....Danbury, Conn.
Danville, Mocksville & So.-Wn. R. R. 3 g. 28 m.
H. M. Shivler, *Supt*...............Leakesville, N. C.
Danville, Olney & O. R. R.R. 4-8½ g. 110 m. 5 lo. 83 c.
Chas. Howard, *Rec. & Man*.............Olney, Ill.
J. M. Graham, *Supt*........................Kansas, Ill.
Louis Parisoe, *M. M. & C. B*...........Kansas, Ill.
Dayton & Union R. R. (*See Clev., Col., Cin. & Ind.*)
Dayton & Michigan R. R. (*See Cin., Ham. & Day.*)
Del. Lackawanna & W. and N. Y., Lack. & W. R. Rs.
4-8½ g. 930 m. 436 lo. 31,989 cars.
Wm. F. Halstead, *Gen. Supt*.......Scranton, Pa.
G. W. B. Cushing, *Pur. Agt*.....New York, N. Y
Walter Dawson, *Mast. of Mach*....Scranton, Pa.
Robt. McKenna, *M. C. B*..............Scranton, Pa.
Bloomsb'g Div.: C. Graham, *M. M*. Kingston, Pa.
Utica Div.: A. C. Salisbury, *Supt*.....Utica, N. Y.
Thos. Thatcher, *M. M*....................Utica, N. Y.
Morris & Essex Div.; Sussex; P. & D. and C. R. Rs.
A. Reasoner, *Supt*.....................Hoboken, N. J.
W. H. Lewis, *M. M*.................Kingsland, N. J.
J. W. Baker, *Mast. Car Rep*..........Dover, N. J.
Oswego & Syracuse Div.:
W. B. Phelps, *Supt*....................Oswego, N. Y.
Jas. Buchanan, *M. M*..............Syracuse, N. Y.
Syracuse, Binghamton & New York R. R.
4-8½ g. 81 m. 20 lo. 598 cars.
W. K. Niver, *Gen. Supt*.........Syracuse, N. Y.
Jas. Buchanan, *M. M*..............Syracuse, N. Y.
Cayuga Div.: W. R. Humphrey, *Supt* Ithaca, N.Y.
Delaware, Maryland & Virginia R. R.
4-8½ g. 101 m. 7 lo. 145 cars.
Tho. Groom, *Supt*............................Lewes, Del.
Geo. Messick, *M. M*........................Lewes, Del.
W. H. Virden, *M. C. B*....................Lewes, Del.
Delaware River R. R. 4-8½ g. 20 m. 3 lo. 4 cars.
E. H. Green, *Supt*................Pedricktown, N. J.
Delaware Western R. R. (*See Balt. & Phil.*)
Delaware & Chesapeake R. R. (*See Penna.; (4) Div.*)
Delaware & Hudson Canal Co.
4-3 and 4-8½ g. 634 m. 180 lo. 10,799 cars.
C. F. Young, *Gen. Man*..........Honesdale, Pa.
C. F. Young, *Pur. Agt*...............Albany, N. Y.
R. C. Blackall, *Supt. of Mach*......Albany N. Y.
Susq. Div.: C. D. Hammond, *Supt*. Albany, N. Y.
Tho. Howard, *M. M*.................Oneonta, N. Y.
J. R. Skinner, *M. C. B*.............Oneonta, N. Y.
Sar. & Ch. Divs.: T. Voorhees, *Supt*...Troy, N. Y.
J. L. Corey, *M. M*.............Green Island, N. Y.
Chr. Körner, *M. C. B*.........Green Island, N. Y.
Pa. Div.: R. Manville, *Supt & Pur Agt*. and
S. H. Dotterer, *M. M*.........Carbondale, Pa.
T. Orchard, *M. C. B*..............Carbondale, Pa.
Denver Circle R. R. 3 g. 6 m. 3 lo. 15 cars.
Theo. C. Henry, *Gen. Man*.........Denver, Col.
John H. Harris, *Gen. Supt*.........Denver, Col.
Denver, Utah & Pacific R. R. 3 g. 34 m. 2 lo. 58 c.
L. M. Fouts, *Gen. Supt*...............Denver, Col.
Denver & New Orleans. 4-8½ g. 140 m. 11 lo. 400 c.
C. W. Fisher, *Gen. Man*...............Denver, Col.
Chas. Wheeler, *Pur. Agt*.............Denver, Col.
J. H. Kirk, *M. M. & M. C. B*.......Denver, Col.
Denver & Rio Grande Ry. 3 g. 1,665 m. 222 lo. 5,932 c.
D. C. Dodge, *Gen. Man*...............Denver, Col.
A. B. Garner, *Pur. Agt*...............Denver, Col.
N. W. Sample, *Supt. M. P. & M*....Denver, Col.
(1) Col & N.M. Div.: R. B. Cable, *Gen. Supt*. Denver, Col
1st Div.: W. H. Bancroft, *Supt*....S. Pueblo, Col.
2d Div.: Cole Lydon, *Supt*.........Alamosa, Col.
3d Div.: G. W. Cook, *Supt*.........Leadville, Col.
4th Div.: R. M. Ridgway, *Supt*........Salida, Col.
(2) Utah Div.: , *Gen. Supt*. Salt Lake City, Utah.
Des Moines, Osceola & Southern R. R.
3 g. 100 m. 7 lo 253 cars.
Henry Stivers, *Gen. Supt*..........Osceola, Ia.
L. D. Berry, *M. M*........................Osceola, Ia.
Elias Tonet, *M. C. B*...................Osceola, Ia.
Des Moines & Ft. Dodge. 4-8½ g. 144 m. 13 lo. 350 c.
C. N. Gilmore, *Supt*..............Des Moines, Ia.
John McGrayel, *M. M*......Grand Junction, Ia.
E. A. Avery, *M. C. B*........Grand Junction, Ia.
Det., Gr. H. & Mil. Ry. 4-8½ g. 189 m. 39 lo. 696 c.
S. R. Callaway, *Gen. Man*..........Detroit, Mich.
John S. Lorimer, *Storekeeper*....Detroit, Mich.
W. J. Morgan, *Supt*....................Detroit, Mich.
F. Parker, *Mech. Supt*...............Detroit, Mich.
Det., Lansing & No'n R. R. 4-8½ g. 222 m. 84 lo. 1027 c
John B. Mulliken, *Gen. Man*......Detroit, Mich.
Allan Bourn, *Pur. Agt*..............Detroit, Mich.
Thos. M. Fish, *Gen. Supt*...............Ionia, Mich.
G. C. Watrous, *M. M. & C. B*..........Ionia, Mich.
Det., Mack. & Marq. R.R. 4-8½ g. 152 m. 16 lo. 1,112 c.
D. McCool, *Gen. Supt*............Marquette, Mich.
E. W. Allen, *Pur. Agt*.............Marquette, Mich.
John Wilson, *Mech. Supt*.......Marquette, Mich.
Dorchester & Delaware R.R. (*See Penna. (4) Del. Div.*)
Dubuque & Dakota R. R. 4-8½ g. 64 m. 2 lo. 54 cars.
A. C. Goodrich, *Supt*.....................Waverly, Ia.
W. S. Couch, *Pur. Agt*................Dubuque, Ia.
Duck River Valley R. R. (*See Nash., Chat. & St. L.*)
Dunkirk, Allegheny Valley & Pittsburgh R. R.
4-8½ g. 91 m. 14 lo. 102 cars.
D. Thayer, *Gen. Supt*...............Dunkirk, N. Y.
R. C. Moore, *Pur. Agt*..........New York, N. Y.
J. C. Haggett *M. M. & C. B*.......Dunkirk, N. Y.

E

East Alabama Ry. 5 g. 22 m. 3 lo. 19 cars.
W. W. Barnes, *Supt*......................Opelika, Ala.
East Broad Top R. R. 3 g. 30 m. 7 lo. 260 cars.
A. W. Sims, *Supt*......................Orbisonia, Pa.
A. B. Greenwood, *M. M*...........Orbisonia, Pa.
East St Louis & Carondelet Ry. 4-9 g. 4 lo. 27 c.
Joseph Hill, *Gen. Supt*.........East St. Louis, Ill.
East Tenn. & Western North Car. R. R.
3 g. 34 m. 2 lo. 70 cars.
Thomas E. Matson, *Supt*. Elizabethton, Tenn.
East Tennessee, Virginia & Georgia R. R.
5 g. 1,453 m. 173 lo. 3,670 cars.
Henry Fink, *V. P. & Gen. Man*. Knoxville, Tenn.
J. F. O'Brien, *Gen. Supt*.........Knoxville, Tenn.
W. A. Harrison, *Pur. Agt*........Knoxville, Tenn.
East Tenn. Div. and No. Car. and Ohio Branches:
F. K. Huger, *Supt*...................Knoxville, Tenn.
B. J. Sitton, *M. M*...................Knoxville, Tenn.
Jos. Armbruster, *M. C. B*.....Knoxville, Tenn.
Alabama Div.: J. M. Bridges, *Supt*...Selma, Ala.
Simon Gay, *M. M*...........................Selma, Ala.
W. W. Pierce, *M. C. B*.....................Selma, Ala.
Memphis & Charleston R. R. (Div.):
R. B. Pegram, Jr., *Supt*......Memphis, Tenn.
H. N. Burford, *M. M*..............Memphis, Tenn.
Atlanta & Georgia Divs.:
Atl. Div.: J. W. Fry, *Supt*..........Atlanta, Ga.
Ga. Div.: J. E. Mallory, *Supt*.......Macon, Ga.
M. J. Rogers, *M. M. & M. C. B*...Atlanta, Ga.
J. H. Perkins, *For. Car Dept*. Atlanta, Ga.
East & West R. R. of Ala. 3 g. 100 m. 6 lo. 75 c.
John Postell, *Manager*.........Cross Plain, Ala.
C. E. Scruton, *M. M. & C. B*...Cedartown, Ga.
Eastern R. R. 4-8½ g. 283 m. 99 lo. 2,268 cars.
Payson Tucker, *Gen. Man*.........Boston, Mass.
D. W. Sanborn, *Mast. of Trans*...Boston, Mass.
G. F. Hurd, *Pur. Agt*...................Boston, Mass.
Amos Pillsbury, *S. M. P. & M*...E. Boston, Mass.
J. D. Billings, *G. For. Car Dept*...Salem, Mass.
Con'y Div.: J. W. Sanborn, *Supt*., Wolfboro J., N.H.
Eastern Kentucky R. R. 4-8½ g. 34 m. 5 lo. 160 c.
H. W. Bates, *Man. & Pur. Agt*... Riverton, Ky.
D. S. Weaver, *M. M*.....................Riverton, Ky.
Eastern (Maine) R. R. (*See Maine Central.*)
Eastern Shore R. R. 4-8½ g. 38 m. 3 lo. 9 c.
W. Thompson, *Supt*..........Princess Anne, Md.
F. Strattner, *M. M*..........Princess Anne, Md.
Elberton Air-Line R.R. (*See Rich. & Dan. N. G. Brs.*)
Elizabeth City & Norfolk R. R. (*See Norfolk So.*)
Elizabethtown, Lex. & Big Sandy R.R. (*See Ches. & O.*)
Emmitsburg R. R. (*See Western Md.*)
Erie & Pittsburg R. R. (*See Penna. Co.; (3) Div.*)
Eureka Springs Ry 4-8½ g. 19 m. 1 lo. 9 cars.
Powell Clayton, *Gen. Man*. Eureka Springs, Ark.
Eureka & Palisade R. R. 3 g. 97 m. 7 lo. 125 cars.
B. Gilman, *Gen. Supt & Pur. Agt*. Eureka, Nev.
E. C. Mills, *M. M*........................Palisade, Nev.
A. S. Longley, *M. C. B*................Palisade, Nev.
European & North American R. R. (*See Maine Cen.*)
Evansville, Rockport & E'n Ry. 4-9 g. 71 m. 5 lo. 98 c.
H. L. Shepard, *Supt*...............Evansville, Ind.
Evansv. & Terre Haute. 4-8½ g. 169 m. 26 lo. 973 c.
D. J. Mackey, *Gen. Supt*.......Evansville, Ind.
John Torrance, *Gen. For*.........Evansville, Ind.

F

Fernandina & Jacksonville R.R. (*See Fla., Tr. & P.*)
Fitchburg R. R., 4-8½ g. 152 m. 100 lo. 3,430 cars.
John Adams, *Gen. Supt*...............Boston, Mass.
E. K. Turner, *Asst. Supt*........Fitchburg, Mass.
F. S. Pratt, *Pur. Agt*....................Boston, Mass.
G. A. Coolidge, *Supt. M. P*.........Boston, Mass.
W. A. Foster, *Asst. Supt. M. P*...Fitchburg, Mass.
J. W. Marden, *M. C. B*.........Charlestown, Mass.
Flint & Pere Marq.* 4-8½ g. 346 m. 72 lo. 1,854 cars.
H. C. Potter, *Gen. Man*.........E. Saginaw, Mich.
D. Edwards, *Asst. Gen. Man*...E. Saginaw, Mich.
G. G. Cook, *Pur. Agt*...........E. Saginaw, Mich.
Sanford Keeler, *Gen. Supt*...E. Saginaw, Mich.
W. F. Potter, *Supt*. (E. Div.)...E. Saginaw, Mich.
M. V. Meredith, *Supt*. (W. Div.) E. Saginaw, Mich.
T. J. Hatswell, *M. M*..............E. Saginaw, Mich.
R. McPherson, *M. C. B*.........E. Saginaw, Mich.
Florida Central & Western R. R.
5 g. 234 m. 16 lo. 193 cars.
Wm. M. Davidson, *Gen. Man*. Jacksonville, Fla.
J. S. McElroy, *Mast. Tr. & Mach*. Tallahassee, Fla.
Florida Southern Ry. 3 g. 91 m. 6 lo. 96 cars.
Sherman Conant, *Gen. Man*..........Palatka, Fla.
Jas. D. Hollister, *Supt*...................Palatka, Fla.
M. R. Miller, *M. M. & C. B*..............Palatka, Fla.
Florida Transit R. R. 5 g. 254 m. 15 lo. 204 c.
D. E. Maxwell, *Gen. Supt*.......Fernandina, Fla.
John Hedges, *Pur. Agt*...........Fernandina, Fla.
R. V. Dahoney, *M. M*..............Fernandina, Fla.
G. Hernandez, *M. C. B*.............Fernandina, Fla.
Fonda, Johnst'n & Gloversv. 4-8½ g. 26 m. 5 lo. 25 c.
Lawton Caten, *Supt*...............Gloversville, N. Y.
G. V. Putman, *M. M*.............Gloversville, N. Y.
Fond du Lac, Amboy & Peoria. 3 g. 30 m. 2 lo. 35 c.
Alonzo Kinyon, *Supt. & P. A*. Fond du Lac, Wis.
Fort Dodge & Fort Ridley R. R. (*See Minn. & St. L.*)
Ft. Madison & No.-West'n Ry. 3 g. 45 m. 5 lo. 127 c.
S. B. Kenrick, *Supt. & Pur. Agt*. Ft. Madison, Ia
I. L. Lamb, *M. M. & C. B*.........Ft. Madison, Ia.
Ft. Wayne, Cin. & Louisv. 4-8½ g. 128 m. 10 lo. 250 c.
White Water R. R. 4-8½ g. 65 m. 5 lo. 170 cars.
W. W. Worthington, *Gen. Supt*...Ft. Wayne, Ind.
T. H. Haberkorn, *M. M*...........Ft. Wayne, Ind.
Wm. Knight, *M. C. B*................Ft. Wayne, Ind.
Fort Worth & Denver City Ry.
4-8½ g. 114 m. 8 lo. 443 cars.
C. L. Frost, *Gen. Supt*............Fort Worth, Tex.
Freehold & New York Ry. 4-8½ g. 15 m. 4 lo. 40 c.
J. E. Ralph, *Supt. & Pur. Agt*..Keyport, N. J.
C. H. Snedeker, *M. M*...............Freehold, N. J.
Fulton County N. G. Ry. 3 g. 61 m. 3 lo. 106 cars.
A. C. Atherton, *Gen. Supt. & P. Agt*. Lewiston, Ill.

G

Gainesville & Dahlonega R. R. 3 g. 15 m.
W. P. Price, *Pres*.....................Dahlonega, Ga.
Gainesville, Jefferson & Southern R.R. (*See Cen. of Ga*)
Gal., Harrisburg & San Antonio Ry. (*See Cen. Pac.*)
Galveston, Houston & Hend. R.R. (*See Mo. Pac. (5) Div.*)
Galveston, Sabine & St. Louis Ry.
4-8½ g. 12 m. 2 lo. 19 cars.
Brad. Barner, *Gen. Man*.........Longview, Tex.
Chas. H. Jewell, *Gen. Supt*.....Longview, Tex.
Geneva, Ithaca & Sayre R. R. (*See Lehigh Val.*)
George's Creek & Cumberland R. R.
4-9 g. 25 m. 6 lo. 212 cars.
J. A. Millholland, *Gen. Man*..Cumberland, Md.
Georgetown & Lane's R. R. 5 g. 36 m. 2 lo. 52 c.
G. W. Earle, *Gen. Supt*.........Georgetown, S. C.
Georgia R. R. 5 g. 307 m. 42 lo. 1,017 cars.
John W. Green, *Gen. Man*............Augusta, Ga.
John S. Cook, *M. M*....................Augusta, Ga.
T. M. Preval, *M. C. B*..................Augusta, Ga.
Georgia Pacific Ry. 5 g. 218 m.
G. J. Foreacre, *Supt*......................Atlanta, Ga.
W. M. Sutton, *Pur. Agt*.........Greenville, Miss.
Benj. Davis, *M. M*.................Greenville, Miss.
J. B. Shelton, *M. C. B*...........Greenville, Miss.
Grand Haven R. R (*See Chic. & W. Mich.*)
Grand Junction Ry. (*See Midland of Can.*)
Grand Rapids, Indiana & Mackinaw. (*See Gr. R. & I.*)
G'd Rap., Newaygo & L. S. R. R. (*See Chic. & W. M.*)
Grand Rapids & Indiana. 4-8½ g. 528 m. 52 lo. 1,724 c.
W. O. Hughart, *Gen. Man*. Grand Rapids, Mich.
W. R. Shelby, *Pur. Agt*....Grand Rapids, Mich.
S. D. Bradley, *M. M*.......Grand Rapids, Mich.
No'n Div.: J. M. Metheany, *Supt*. G'nd Rap., Mich.
So'n Div.: P. S. O'Rourke, *Supt*. Fort Wayne, Ind.
Grand Southern Ry. of New Brunswick.
4-8½ g. 82 m. 5 lo. 54 cars.
J. N. Greene, *Gen. Man*........St. George, N. B.
F. W. Holt, *Supt*....................St. George, N. B.
Thomas Logan, *M. M*.............St. George, N. B.
Grand Tower & Carbondale. 4-8½ g. 25 m. 6 lo. 357 c.
T. M. Williamson, *Supt. & P. A*..Gr. Tower, Ill.
Hugh Smith, *M. M. & C. B*.....Grand Tower, Ill.
Grand Trunk Ry. 4-8½ g. 2,332 m. 660 lo. 16,330 c.
Joseph Hickson, *Gen. Man*........Montreal, Can.
Wm. Wainright, *Asst. Man*........Montreal, Can.
Mont. Divs.: W. J. Spicer, *Supt*. Montreal, Can.
Jno. Taylor, *Gen. Storekeeper*. Montreal, Can.
Herbert Wallis, *Mech. Supt*...Montreal, Can.
Wm. McWood, *Supt. Car Dept*. Montreal, Can.
F. R. F. Brown, *Man. Lo. Wks*. Montreal, Can.
J. Haskoni, *Div. M. S*..........Richmond, P. Q.
Tor. Div.: E. Wragge, *Asst. Gen. Man*. Toronto, Can.
F. L. Wanklyn, *Div. M. S*.....Brockville, Ont.
J. Davis Barnett, *Div. M. S*....Stratford, Ont.
Gt. West'n Div.: Chas. Stiff, *Supt*. Hamilton, Ont.
E. Baines, *Store Kpr*...................London, Ont.
C. K. Domville, *Mech. Supt*.....Hamilton, Ont.
C. F. Hanson, *Lo. For*..................London, Ont.
J. D. McIlwain, *Supt. Car Dept*..London, Ont.
Chi. & Gr. Trunk Ry. 4-8½ g. 339 m. 103 lo. 1,191 c.
S. R. Callaway, *Gen. Man*..........Chicago, Ill.
W. H. Pettibone, *Supt*.....Battle Creek, Mich.
A. Judd, *Pur. Agt*................Fort Gratiot, Mich.
H. Roberts, *Mech. Supt*.......Port Huron, Mich.
Grand Trunk, Georgian Bay & Lake Erie Ry. (*See G. T.*)
Great Western Ry. (*See Grand Trunk; G. W. Div.*)
Green Bay, Winona & St. Paul R. R.
4-8½ g. 250 m. 19 lo. 623 cars.
Timothy Case, *Gen. Man. & P. A*. Green Bay, Wis.
A. Fenwick, *M. M*..................Ft. Howard, Wis.
Green Cove Spring & Melrose R.R. 3 g. 32 m. 1 lo. 11 c.
S. Ackley, *Pres*.......................Philadelphia, Pa.
Greenwich & Johnsonville Ry. 4-8½ g. 15 m. 1 lo. 7 c.
J. H. Thompson, *Supt*...........Greenwich, N. Y.
Gulf, Col. & Santa Fé Ry. 4-8½ g. 536 m. 43 lo. 1,400 c.
John Sealy, *Gen. Man*..........Galveston, Texas.
F. P. Killeen, *Asst. Gen. Man*. Galveston, Texas.
Jno. W. Thorne, *Pur. Agt*....Galveston, Texas.
G. B. Nichols, *M. M*.............Galveston, Texas.
W. H. Martin, *M. C. B*.........Galveston, Texas.
Gulf, W'n Texas & Pac. Ry. 4-8½ g. 68 m. 6 lo. 74 c.
M. D. Monserrate, *Supt. & Pur. Agt*. Cuero, Tex.
James Mooney *M. M*......................Cuero, Texas.

H

Halifax & Cape Breton Ry. 4-8½ g. 79 m. 9 lo. 268 c.
H. Abbott, *Manager*..........New Glasgow, N. S.
J. B. Jones, *M. M*...............New Glasgow, N. S.
Hannibal & St. Jo. R. R. 4-8½ g. 292 m. 76 lo. 1,906 c.
John B. Carson, *Gen. Man*.........Hannibal, Mo.
W. R. Woodard, *Supt*.................Hannibal, Mo.
T. L. Dunn, *Ch. Eng. & Pur. Agt*..Hannibal, Mo.
Jas. Long, *Supt. M. P. & Car Dep*. Hannibal, Mo.
Hanover Branch R. R. 4-8½ g. 8 m. 2 lo. 18 cars.
E. Y. Perry, *Supt*...........South Hanover, Mass.
Hanover Junction, Hanover & Gettysburg R. R.
4-8½ g. 74 m. 10 lo. 140 cars.
H. D. Scott, *Gen. Supt*.............Gettysburg, Pa.
John J. Bingley *M. M*.................Hanover, Pa.
Jas. Harthorn, *M. C. B*..............Hanover, Pa.
Harrisburg & Potomac R. R. 4-8½ g. 35 m. 3 lo. 35 c.
R. H. Middleton, *Supt*.......Boiling Springs, Pa.
Hartford & Conn. Val. R. R. 4-8½ g. 47 m. 9 lo. 196 c.
Samuel Babcock, *Gen. Supt*.......Hartford, Ct.
Levi Woodhouse, *Asst. Supt*.......Hartford, Ct.
S. E. Brewer, *M. M. & C. B*.......Hartford, Conn.
Hartford & Conn. W'n R.R. 4-8½ g. 110 m. 16 lo. 495 c.
John F. Jones, *Supt*......................Hartford, Ct.
J. C. Barton, *M. M*.......................Hartford, Ct.
Hartwell R. R. (*See Rich. & Dan.; N. G. Brs.*)
Hecla & Torch Lake R. R. 4-1 g. 5 m 5 lo. 165 cars.
W. A. Childs, *Gen. Man*.............Calumet, Mich.
Herkimer, Newport & Poland Ry.
3-6 g. 17 m. 2 lo. 24 cars.
Albert Wilber, *Supt*................Herkimer, N. Y.
Hobart & Manistee River R. R. 3 g. 9 m. 2 lo. 42 c.
H. W. Marsh, *Supt*.........................Hobart, Mich.
Hopkinton, Milford & Woonsocket R. R. 22 m.
E. T. Logee, *Supt*.......................Milford, Mass.
Hot Springs Branch R.R. (*See Mo. Pac.; (4) Div.*)
Housatonic R. R. 4-8½ g. 126 m. 25 lo. 571 cars.
W. H. Yeomans, *Supt*..............Bridgeport, Ct.
D. S. Draper, *Pur. Agt*.............Bridgeport, Ct.
N. Slingland, *M. M*................Falls Village, Ct.
J. J. Ferris, *M. C. B*..............Falls Village, Ct.
Houston Belt Ry. 4-8½ and 3 gauge 16 miles.
S. L. Werden, *V. P. & Gen. Man*. Houston, Tex.
Houston, East & West Tex. Ry. 3 g. 150 m. 10 lo. 570 c.
Paul Bremond, *Pr. & Pur. Agt*..Houston, Tex.
E. L. Bremond, *Gen. Man*...........Houston, Tex.
B. O. Diffey, *M. M*......................Houston, Tex.
C. F. Schelewa, *M. C. B*..........Houston, Texas.
Houston & Tex. Cen. Ry. 4-8½ g. 750 m. 78 lo. 2,526 c.
J. Waldo, *V. Pr. & Gen. Man*....Houston, Tex.
A. H. Swanson, *Gen. Tr. Man*....Houston, Tex.
E. S. Larchar, *Pur. Agt*.........New York, N. Y.
L. C. Noble, *Gen. M. M*...............Houston, Tex.
James McGee, *M. C. B*................Houston, Tex.
So. & Wn. Divs.: M. G. Howe, *Supt*. Houston, Tex.
No. & Mi. Divs.: G. A. Quinlan, *Supt*., and
C. H. Burns, *Asst. M. M*.........Corsicana, Tex.
No.-Wn. Div.: Donald Allen, *Supt*.... Waco, Tex.
Humeston & Shenandoah R. R.
4-8½ g. 113 m. 18 lo. 80 cars.
F. O. Wyatt, *Gen. Man*...............Clarinda, Ia.
M. B. Snyder, *M. M*....................Clarinda, Ia.
Huntingdon & Br. Top Mt. 4-8½ g. 62 m. 18 lo. 69 c.
Geo. F. Gage, *Gen. Supt*.........Huntingdon, Pa.
Samuel B. Knight, *Pur. Agt*..Philadelphia, Pa.
William Barkla *M. M*....................Saxton Pa.

I

Illinois Central R. R. 4-8½ g. 1,909 m. 327 lo. 8,511 c.
Jas. C. Clark, *Gen. Man*................Chicago, Ill.
E. T. Jeffery, *Gen. Supt*...............Chicago, Ill
O. Ott, *Pur. Agt*............................Chicago, Ill
Henry Schlacks, *Supt. of Mach*....Chicago, Ill.
W. B. Snow, *M. M. Car Works*.....Chicago, Ill.
(1) Ill. & Ia. Divs.: C. A. Beck, *Supt*.....Chicago, Ill
Chic. Div.: T. J. Hudson, *Supt*..........Cairo, Ill.
Wm. Renshaw, *Act. M. M*...........Chicago, Ill.
Mid. Div.: H. L. Frisbie, *Supt*..........Pontiac, Ill.
Spring Div.: W. Wilkinson, *Supt*. Springfield, Ill.
W. B. McKenna, *M. M*....................Clinton, Ill.
No'n Div.: J. C. Jacobs, *Supt*............Amboy, Ill.
J. B. Edams, *M. M*..........................Amboy, Ill.
So. Div.: David Oxley, *M. M*......Centralia, Ill.
Ia. Div.: M. Gilleas, *Supt*...........Dubuque, Ia.
Thos. W. Place, *M. M*.................Waterloo, Ia.
(2) N. O. Divs.: C. M. Sheafe, *Supt*..New Orleans, La.
W. H. Purdy, *Supt. Mach*..McComb City, Miss.
Geo. W. Baxter, *M. C. B*..McComb City, Miss.
So. Div.: H. W. Clarke, *Acting Supt*. do.
W. P. McKinley, *M. M*....McComb City, Miss.
No. Div.: J. G. Mann, *Supt*.........Jackson, Tenn.
J. M. Keith, *M. M*......................Jackson, Tenn.
J. F. White, *M. M*..............Water Valley, Miss.
Illinois Midland Ry. 4-8½ g. 176 m. 12 lo. 611 cars.
D. H. Conklin, *Rec. & Gen. Man*.......Decatur, Ill.
O. E. Grady, *Train Mast*................Decatur, Ill.
Frank Young, *For. Shops*...................Paris, Ill.
Illinois & St. Louis R. R. 4-8½ g. 19 m. 8 lo. 402 c.
C. H. Sharman, *Gen. Supt. & P. A*. St. Louis, Mo.
D. J. Timlin, *M. M*......................Belleville, Ill.
Charles Rothe, *M. C. B*...............E. St. Louis Ill.
Indiana, Bloomington & Western Ry.
4-8¾ g. 826 m. 112 lo. 4,067 cars.
C. E. Henderson, *Gen. Man*. Indianapolis, Ind.
I. H. Wilson, *Gen. Supt*.....Indianapolis, Ind.
H. C. Norton, *Pur. Agt*.......Indianapolis, Ind.
B. Warren, *Gen. M. M*.........Indianapolis, Ind.
Peoria Div.: E. Hiserodt, *M. M*.....Urbana, Ill.
St. Louis Div.: John King, *M. M*. Indianapolis, Ind.
Ohio So. Rd.: D. R. Ennis, *Supt*....Springfield, O.
Jos. S. Porter, *M. M*......................Sandusky, O.
Indiana, Illinois & Iowa R.R. 4-8½ g. 104 m. 5 lo. 83 c.
F. M. Drake, *Gen. Man*..............Kankakee, Ill.
T. P. Shonts, *Gen. Supt*.............Kankakee, Ill.
H. V. Vedder, *M. M*......................Streator, Ill.
Indiana & Illinois Southern Ry. 3 g. 91 m. 3 lo. 69 c.
W. C. Lyon, *Gen. Man. & P. Agt*. Robinson, Ill.
J. S. Pickering, *M. M. & C. B*...Effingham, Ill.
Indianapolis, Decatur & Springfield Ry.
(*See Ind., Bloom. & West'n.*)
Indianapolis & St. Louis R. R. (*See C., C., C. & I.*)
Indianapo. & Vincennes R. R. (*See Penna. Co.; (8) Div.*)
Intercolonial Ry. 4-8½ g. 846 m. 135 lo. 4,500 cars.
David Pottinger, *Chief Supt*.....Moncton, N. B.
T. V. Cook, *Gen. Storekeeper*...Moncton, N. B.
H. A. Whitney, *Mech Supt*......Moncton, N. B
Ewd. D. Shaffer, *M. C. B*.........Moncton, N. B.
Monc. Div.: J. E. Price, *Supt*..Cambellton, N. B.
Hal. & St. J. Div.: J. J. Wallace, *Supt*..Truro, N. F
Levis Div.: A. McDonald, *Supt*. Rivière du Loup, Q.
International Ry. 4-8½ g. 69 m. 7 lo. 12 cars.
D. E. McFee, *Supt*.................Sherbrooke, Que
J. Ruelle, *M. M*......................Sherbrooke, Que.
W. Charest, *M. C. B*..............Sherbrooke, Que.
International & Gt. N'n R. R. (*See Mo. Pac.; (5) Div.*)
Iowa Falls & Sioux City R. R. (*See Ill. Cen.*)
Iron Ry. (*See Tol., Cin. & St. L.*)
Iron Mountain & Helena R. R. (*See Mo. Pac.; (4) Div.*)
Ithaca, Auburn & Western Ry. (*See Southern Cen.*)

J

Jacksonville So.-E'n R. R. 4-8½ g. 54 m. 5 lo. 69 c.
E. S. Greenleaf, *Supt*.............Jacksonville, Ill.
Ira F. Petrie, *M. M*..................Jacksonville, Ill.
Jacksonville, St. Augustine & Halifax River Ry.
3 g. 76 m. 2 lo. 27 cars.
W. L. Crawford, *Gen. Man*..Jacksonville, Fla.
H. S. Ming, *Supt*....................Jacksonville, Fla.
Jacksonv., Pensacola & Mob. (*See Fla. Cent. & W.*)
Jamesville & Washington R. R. (*See Norfolk So'n.*)
Jeffersonv'l, Madison & Indpls. R. R. (*See (9) Pa. Co.*)
Jersey City & Albany R. R. 4-8½ g. 38 m.
J. W. McCulloh, *Manager*....Jersey City, N. J.
Jersey City & Bergen R. R. 4-8½ g. 6 m. 2 lo. 13 c.
T. M. Sayre, *Gen. Supt*..........Jersey City, N. J.
Jersey Shore, Pine Creek & Buff. Ry. (*See Phil. & R.*)
Junction & Breakwater R.R. (*See Del., Md. & Va.*)

K

Kaaterskill R. R. 3 g. 8 m.
J. H. Jones, *Supt*.....................Rondout, N. Y.
Kankakee & Seneca R.R. (*See Cin., Ind., St. L. & Chi.*)
Kansas Central R. R. (*See Union Pacific.*)
Kansas City, Fort Scott & Gulf R. R.
4-8½ g. 389 m. 34 l. 1,377 c.
Geo. H. Nettleton, *Gen. Man*..Kansas City, Mo.
L. W. Towne, *Gen. Supt*......Kansas City, Mo.
H. P. Jacques, *Pur. Agt*.......Kansas City, Mo.
J. S. McCrum, *M. M*.............Kansas City, Mo.
A. N. Montier, *M. C. B*.........Kansas City, Mo.
Kansas Cy, Lawrence & So. Kan. (*See At., Top. & S. F.*)
Kansas City, Springfield & Memphis R. R.
4-8½ g. 275 m. 10 lo. 125 cars.
George H. Nettleton, *Pres*... Kansas City, Mo.
Kansas City, St. Joseph & Council Bluffs; and St. Jo. & Des Moines R. Rs. 4-8½ & 3 g. 368 m. 41 lo. 1,148 c.
J. F. Barnard, *Gen. Supt. & P. A*. St. Joseph, Mo.
Wm. Irving, *Pur. Agt*....................Chicago, Ill.
F. A. Chase, *M. M*....................St. Joseph, Mo.
Thos. Aylesbury, *G. For. Car Dep*. St. Joseph, Mo.
Kansas City & Southern Ry. 4-8½ g. In progress.
Wm. Bailey, *Pres*....................Kansas City, Mo.
Kansas Coal Belt R. R. 4-8½ g. In progress.
C. H. Malin, *Gen. Man*.....................Girard, Kan.
F. A. Hill, *Supt*..............................Girard, Kan.
Kansas & Gulf Short Line R. R. 33 m. 2 lo. 32 cars.
Eli Culverhouse, *Gen. Man*.................Tyler, Tex.
V. K. Stevenson, *Pur. Agt*.....New York, N. Y.
Kendall & Eldred R. R. (*See Buf., N. Y. & Phil.*)
Kent Co.; Sm. & Del. Bay Rds. 4-8½ g. 50 m. 2 lo. 13 c.
Fred Gerker, *G. Man. & P. A*. Chestertown, Md.
Kent Northern Ry. 4-8½ g. 20 m. 1 lo. 8 cars.
J. C. Brown, *Gen. Man*..........Richibucto, N. B.
Kentucky Central R. R. 4-9 g. 184 m. 22 lo. 640 cars.
G. W. Bender, *Supt*...................Covington, Ky.
A. H. Watts, *M. of Mach*..........Covington, Ky.
J. L. Hackathorn, *M. C. B*.......Covington, Ky.
Kentucky & South Atlantic Ry. 3 g. 23 m. 3 lo. 52 c.
Geo. B. Harper, *Supt. & P. A*..Mt. Sterling, Ky.
S. P. Hatfield, *M. M*..................Mt. Sterling, Ky.
Keokuk & Des Moines R.R. (*See Chi., R. I. & Pac.*)
Kinzua R. R. (*See Buf., N. Y. & Phil.*)
Kingston & Pembroke Ry. 4-8½ g. 73 m. 7 lo. 124 c.
B. W. Folger, *Supt*......................Kingston, Ont.
C. F. Gildersleeve, *Pur. Agt*....Kingston, Ont.
Geo. Becker, *M. M*.......................Kingston, Ont.
Knox & Lincoln R. R. 4-8½ g. 49 m. 5 lo. 103 cars.
C. A. Coombs, *Supt*...............................Bath, Me.
Wm. A. Field, *M. M*............................Bath, Me.
C. L. Turner, *M. C. B*..........................Bath, Me.
Knoxville & Augusta R. R. 5 g. 16 m. 2 lo. 34 cars.
J. M. Hood, *Supt*......................Knoxville, Tenn.
M. R. Hood, *Pur. Agt*...............Knoxville, Tenn.

L

Lackawanna & Pittsburg R. R. 3 g. 101 m.
R. M. Patterson, *Gen. Supt*...Friendship, N. Y.
Lake Champlain & Moriah R.R. 4-8½ g. 8 m. 8 lo. 222 c.
E. B. Hedding, *Supt*................Port Henry, N. Y.
Lake Erie & Western Ry. 4-8½ g. 388 m. 43 lo. 1,623 c.
D. S. Hill, *Gen. Supt*.................La Fayette, Ind.
T. H. Perry, *Pur. Agt*................La Fayette, Ind.
H. L. Cooper, *Supt. of Equipment*....Lima, O.
Lake George & Muskegon River R. R.
4-8½ g. 20 m. 4 lo. 79 cars.
W. S. Gerrish, *Gen. Man*.....Muskegon, Mich.
Lake Shore & Michigan So'n Ry.
4-8½ g. 1,340 m. 547 lo. 17,115 cars.
John Newell, *Gen. Man*.................Cleveland, O.

P. P. Wright, Gen. Supt .... Cleveland, O.
A. C. Armstrong, Pur. Agt .... Cleveland, O.
James Sedgley, Gen. M. M .... Cleveland, O.
John Kirby, Gen. M. C. B .... Cleveland, O.
East'n Div.: C. B. Couch, Supt ..... Cleveland, O.
J. S. Graham, M. M .... Buffalo, N. Y.
A. C. Robson, M. C. B .... Buffalo, N. Y.
L. O. Gassett, M. M .... Cleveland, O.
J. Withycombe, M. C. B .... Cleveland, O.
Frank. Div.: G. H. McIntire, Supt. Youngstown, O.
Toledo Div.: Thos. Flesher, Jr., Supt. Cleveland, O.
J. M. Sanborn, M. M .... Norwalk, O.
W. O. Smyth, M. C. B .... Norwalk, O.
Mich. Divs.: J. E. Curtis, Supt .... Toledo, O.
Det. Brs.: T. J. Charlesworth, Supt. Detroit, Mich.
Lansing, Ypsilanti & Ft. Wayne Branches.
W. H. Caniff, Supt .... Hillsdale, Mich.
Western Div.: A. G. Amsden, Supt ... Chicago, Ill.
G. W. Stevens, M. M .... Elkhart, Ind.
Frank O. Bray, M. C. B .... Adrian, Mich.
Gr. Rap. Br.: M. E. Wattles, Supt. Kalamazoo, Mich.
Lake Tahoe R. R. 3 g. 10 m. 3 lo. 49 cars.
D. L. Bliss, Gen. Man .... Carson, Nev.
John T. Rogers, Gen. Supt .... Carson, Nev.
Geo. R. Lindsay, M. M .... Carson, Nev.
Leavenworth, Topeka & So. W'n Ry. (See A. T. & S. F.)
Lebanon Springs R. R. 4–8½ g. 58 m. 5 lo. 44 c.
W. C. Alstyne, Manager .... Albany, N. Y.
J. K. Hotaling, Pur. Agt .... Albany, N. Y.
Geo. Tefft, M. M .... Chatham, N. Y.
Lehigh Valley R. R. 4–8½ g. 559 m. 369 lo. 36,125 c.
H. S. Goodwin, Gen. Supt .... Bethlehem, Pa.
W. C. Alderson, Pur. Agt ..... Philadelphia, Pa.
John I. Kinsey, M. M .... So. Easton, Pa.
John S. Lentz, M. C. B .... Packerton, Pa.
N. J. Div.: Jas. Donnelly, Supt. Perth Amboy, N. J.
Coal Rds.: J. I. Blakeslee, Supt. Mauch Chunk, Pa.
D. Clark, M. M .... Hazleton, Pa.
John Campbell, M. M .... Delano, Pa.
B. M. Div.: A. G. Brodhead, S. Mauch Chunk, Pa.
P. Hofecker, M. M .... Weatherly, Pa.
Wy. Div.: A. Mitchell, S. & M. M. Wilkesbarre, Pa.
Pa. & N. Y.; and Geneva, Ithaca & Sayre R. Rs.
Wm. Stevenson, Supt .... Sayre, Pa.
J. N. Weaver, M. M .... Sayre, Pa.
Lehigh & Hudson River Ry. 4–8½ g. 63 m. 8 lo. 350 c.
Grinnel Burt, Gen Man .... Warwick, N. Y.
John Sayre, Pur. Agt .... Warwick, N. Y.
W. L. Anderson, Supt .... Warwick, N. Y.
S. Mills, M. M .... Warwick, N. Y.
Lehigh & Lackawanna and Lehigh & Susquehanna R. Rs. (See Phil. & Read.; N. J. Cen. Div.)
Levis & Kennebec R. R. (See Quebec Cen.)
Ligonier Valley R. R. 4-9 g. 11 m. 2 lo. 22 cars.
Thos. A. Mellon, Gen. Manager .. Pittsburg, Pa.
Geo. Senft, Supt. & P. Agt .... Latrobe, Pa.
Little Miami R. R. (See Penna. Co.'s Rds.; (8) Div.)
Little Rock, Miss. River & Texas Ry.
4–8½ g. 170 m. 12 lo. 299 cars.
Hy. Wood, Gen. Man .... Little Rock, Ark.
J. A. Woodson, G. S. & P. A. Little Rock, Ark.
F. Hufsmith, M. M. & C. B ... Arkansas City, Ark.
Little Rock & Fort Smith. 4–8½ g. 168 m. 12 lo. 353 c.
Hy. Wood, Gen. Man .... Little Rock, Ark.
T. Hartman, Gen. Supt .... Little Rock, Ark.
James Eblin, M. M .... Argenta, Ark.
James Malone, M. C. B .... Argenta, Ark.
Little Saw Mill Run R. R. 3 & 4–8½ g. 8 m. 4 lo. 327 c.
T. Hartley, Gen. Man .... Banksville, Pa.
Long Island R. R. 4–8½ g. 352 m. 92 lo. 953 cars.
I. D. Barton, Gen. Supt. Long Island City, N. Y.
Benj. Norton, Pur. Agt. Long Island City, N. Y.
C. A. Thompson, M. M. & C. B. do.
W. B. Turner, M. M .... Hunter's Point, L. I.
O. Fairhurst, M. M .... Greenpoint, L. I.
Longview & Sabine Valley R. R. (See Gal. Sab. & St. L.)
Louisiana W'n R. R. (See Cen. Pac.; G., H. & S. A. Div.)
Louisville, Cin. & Lexington R. R. (See Louis. & N.)
Louis., Evans. & St. L. Ry. 4–8½ g. 254 m. 24 lo. 1,032 c.
Webster Snyder, Gen. Man ..... Louisville, Ky.
W. H. Field, Pur. Agt .... Louisville, Ky.
F. M. Mast, M. M .... Evansville, Ind.
Louisville, New Albany & Chicago Ry.
4–8½ g. 470 miles 56 lo. 3,700 cars.
John MacLeod, Gen. Supt .... Louisville, Ky.
G. C. Breed, Pur. Agt .... Louisville, Ky.
Josiah Bettis, M. M. & C. B ... New Albany, Ind.
Nor. Div.: W. G. Sala, Supt .... Chicago, Ill.
So. Div.: W. N. Marshall, Supt. New Albany, Ind.
Louisville, New Orleans & Tex. Ry. 450 m. In progress.
R. T. Wilson, Dir. 2 Exchange Ct., New York.
Louisville & Nashville R. R.
5 g. 2,090 m. 367 lo. 11,353 cars.
Milton H. Smith, Gen Man .... Louisville, Ky.
P. P. Huston, Pur Agt .... Louisville, Ky.
B. Dunham, Gen. Supt. Trans .... Louisville, Ky.
Reuben Wells, Supt. Mach .... Louisville, Ky.
Louisv. Divs.; and Louisv., Cin. & Lex. Ry. (Cin. Div.)
J. G. Metcalf, Supt. Trans ...... Louisville, Ky.
P. Leeds, M. M. (Lo. Div.) ...... Louisville, Ky.
J. W. Luttrell, M. M. (Cin. Div.). Louisville, Ky.
J. G. Clifford, M. M. (2d & C. Div.). Bowling Grn. Ky.
Henderson Div.: L. Hege, Supt ... Henderson, Ky.
W. P. Pike, M. M .... Henderson, Ky.
Nash. & D. Div.: J. Geddes, Supt. Nashville, Tenn.
M. M .... Nashville, Tenn.
S. & N. A. Div.: E. Marsh, Supt. Birmingham, Ala.
C. W. White, M. M .... Birmingham, Ala.
Mob. & M.: N. Div. Pens. & Sel.; Sl. & Mont. R. Rs.:
M. S. Belknap, Supt .... Montgomery, Ala.
J. N. Hall, M. M. (Mont. Shops). Montgomery, Ala.
N. O. Div.: J. T. Harrahan, Supt. New Orleans, La.
Wm. Adair, M. M .... Mobile, Ala.
Memp. Div.: W. Colcamp, Supt. Memphis, Tenn.
J. V. Slusser, M. M .... Memphis, Tenn.
St. L. Div.: J. Montgomery, Supt. Evansville, Ind.
Thos. Walsh, M. M .... Mt. Vernon, Ill.
Pensacola and So. Div. Pens. & Selma Rds.:
E. O. Saltmarsh, Supt .... Pensacola, Fla.
R. B. Small, M. M .... Pensacola, Fla.
Louisville & Wadley R. R. 5 g. 10 m. 1 lo. 5 c.
J. H. Wilkins, Supt. & Pur. Agt Louisville, Ga.

M

Macon & Brunswick R. R. (See E. Tenn., Vir. & Ga.; At. & Ga. Divs.)
Maine Central R. R. 4–8½ g. 465 m. 59 lo. 1,335 c.
Payson Tucker, Gen. Man .... Portland, Me.
Ira K. Russell, M. M .... Waterville, Me.
C. H. Kenison, M. C. B .... Augusta, Me.
Eastern Maine. 3 g. 19 m. 2 lo. 40 c.
L. L. Lincoln, Supt .... Bucksport, Me.
Manchester & Keene R. R. 4–8½ g. 30 m. (See Concord.)
Manchester & Lawrence R. R. (See Concord.)
Manchester & North Weare R. R. (See Concord.)
Manhattan Ry. 4–8½ g. 32 m. 219 lo. 630 pass. c.
Frank K. Hain, Gen. Man ..... New York, N. Y.
C. L. Green, Supt .... New York, N. Y.
T. W. Peeples, M. M .... New York, N. Y.
H. A. Webster, M. C. B .... New York, N. Y.
Manhattan, Alma & Burlingame Ry. (See A., T. & S. F.)
Manitoba Southwestern Colonization Ry.
4–8½ g. 52 m. 3 lo. 125 cars.
J. M. Eagan, Gen. Supt .... Winnipeg, Man.
Chas. Newell, M. M .... Winnipeg, Man.
Marietta & Cincinnati R. R. (See Cin. Wash. & Balt.)
Marietta & North Georgia R. R. 3 g. 60 m. 3 lo. 7 c.
J. B. Glover, Supt. & P. Agt ...... Marietta, Ga.
E. A. Withers, M. M .... Marietta, Ga.
Marquette, Houghton & Ontonagon R. R.
4–8½ g. 100 m. 42 lo. 2,530 cars.
Samuel Schoch, Gen. Man ..... Marquette, Mich.
M. B. McGee, Pur. Agt .... Marquette, Mich.
W. H. Williams, M. M .... Marquette, Mich.
H. D. Lyons, M. C. B .... Marquette, Mich.
Maryland Central R. R. 3 g. 27 m. 4 lo. 56 cars.
S. G. Boyd, Supt .... Baltimore, Md.
Massachusetts Central R. R. 4–8½ g. 48 m. 5 l. 81 c.
E. G. Allen, Supt. & Pur. Agt .... Boston, Mass.
E. A. Walker, M. M .... So. Sudbury, Mass.
McComb, Deshler & Toledo R. R. (See Cin., Ham. & Day.; D. & M. Div.)
Meadville Ry. (See Penna. Co.'s Rds.; (2) Div.)
Memphis & Charleston R. R. (See E. Tenn. Va. & Ga.)
Memphis & Lit. Rock R. R. 5 g. 135 m. 14 lo. 299 c.
E. K. Sibley, G. Man. & P. A. Little Rock, Ark.
H. G. Fleming, Supt .... Memphis, Tenn.
Thos. Rennell, M. M .... Argenta, Ark.
P. Twitchell, M. C. B .... Argenta, Ark.
Mexican Ry. 4–8½ g. 293 m. 42 lo. 616 cars.
E. W. Jackson, Gen. Man .... Mexico, Mex.
Mexican Central Ry. 4–8½ g. 680 m. 73 lo. 818 c.
Howard Hinckley, Pur. Agt .... Boston, Mass.
Main Line: 309 m.
D. B. Robinson, Gen. Man ..... City of Mexico.
J. H. Garner, Supt. Trans .... City of Mexico.
F. W. Johnstone, M. M .... City of Mexico.
J. H. O'Brien, M. C. B .... City of Mexico.
Chihuahua Div.: 371 m.
D. B. Robinson, G. Supt. El Paso del Norte, Mex.
Supt. R. S. El Paso del Norte, Mex.
Tampico Div.: 262 m. In progress.
Edward A. Whorf, Supt ...... Tampico, Mex.
Mexican National Ry. 3 g. 766 m. 50 lo. 1,283 c.
Texas Mexican Ry. 3 g. 171 m. 10 lo. 212 c.
G. C. Gardner, Gen. Man .... New York, N. Y.
J. Dougherty, Pur. Agt .... New York, N. Y.
Galv. Div. T. M. Ry.: M. Quin, Supt. Galveston, Tex.
No. Div. Mex. Nat. Ry. & So. Div. Tex.-Mex. Ry.
F. A. Lister, Supt .... Laredo, Texas.
Jno. Harding, M. M. & C. B. Corpus Christi, Tex.
So. Div. M. N. Ry.: W. E. Lewis, Supt. Mexico, Mex.
J. M. Winslow, M. M .... Mexico, Mex.
Mat. Div.: F. E. Butterfield, Supt. Matamoras, Mex.
Mexican, Oriental, Inter-Oceanic & International R. R. 1,400 miles. In progress.
G. M. Dodge, Pres. 195 B'way, New York, N. Y.
Michigan Cen. R. R. 4–8½ g. 1,485 m. 357 lo. 11,284 c.
H. B. Ledyard, Gen. Man .... Detroit, Mich.
Allan Bourn, Pur. Agt .... Detroit, Mich.
S. H. Edgerly, Gen. M. M .... Jackson, Mich.
Robert Miller, Gen. M. C. B ..... Detroit, Mich.
(1) Lines West of Detroit River:
E. C. Brown, Gen. Supt .... Detroit, Mich.
East. Div.: D. S. Sutherland, Supt. Detroit, Mich.
Bay City, Saginaw & Mackinaw Divisions.:
W. A. Vaughan, Supt .... Bay City, Mich.
C. E. Smart, M. M .... Bay City, Mich.
Main Line: Gr. Rap.; So. Bend; and So. Hav. Divs.:
C. B. Bush, Supt .... Jackson, Mich.
W'n Divs.: R. H. L'Hommedieu, Supt. Chicago, Ill.
(2) Lines East of Detroit River:
W. P. Taylor, Gen. Supt .... Buffalo, N. Y.
E. P. Murray, Supt .... St. Thomas, Ont.
Rob't Potts, M. C. B .... St. Thomas, Ont.
Middleburg & Schoharie; and Schoharie Valley R. Rs. 4–8½ g. 11 m. 2 lo. 6 cars.
P. S. Danforth, Gen. Supt ... Middleburg, N. Y.
Midland of Canada. 4–8½ g. 452 m. 48 lo. 1,423 c.
Geo. A. Cox, Gen. Man ..... Peterborough, Ont.
W. B. Ferguson, Gen. Supt. Peterborough, Ont.
C. H. Crofts, Storekeeper ... Peterborough, Ont.
J. D. Barnett, Mech. Supt ...... Port Hope, Ont.
Edward Douglas, M. C. B ...... Port Hope, Ont.
H. Harry, M. C. B .... Lindsay, Ont.
Tor. & Nipissing Div.: J. Haggas, M. M. Uxb'ge, Ont.
Chas. E. Caron, M. C. B .... Uxbridge, Ont.
Midland No. Carolina Ry. 5 g. 95 m. 9 lo. 82 cars.
Atlantic & North Carolina Ry. 22 m.
John Gatling, Gen. Man .... Newbern, N. C.
J. A. Bryan, Supt .... Newbern, N. C.
D. J. Sprague, Pur. Agt ...... New York, N. Y.
B. Manly, Supt. of Mach .... Newbern, N. C.
Milwaukee, Lake Shore & Western Ry.
4–8½ g. 322 m. 40 lo. 1,536 cars.
H. G. H. Reed, Gen. Man. & P. Agt. Milwaukee, Wis.
J. Donahue, Supt .... Milwaukee, Wis.
Chas. S. Hayden, Asst. Supt ... Manitowoc, Wis.
David B. Curtis, Asst. Supt ..... Oshkosh, Wis.
John Hickey, M. M .... Manitowoc, Wis.
Milwaukee & Northern and Wisconsin & Michigan R. Rds. 4–8½ g. 204 m. 15 l. 430 cars.
C. F. Dutton, Gen. Supt .... Milwaukee, Wis.
N. S. Kimball, M. M .... Green Bay, Wis.
Mineral Range R. R. 3 g. 13 m. 4 lo. 43 cars.
Chas. E. Holland, Pr. & Supt ... Hancock, Mich.
W. H. Carr, Pur. Agt .... Hancock, Mich.
T. J. Shellhorn, M. M. & C. B .. Hancock, Mich.
Minneapolis, Lyndale & Minnetonka Ry.
3 g. 20 miles 4 motors 1 lo. 35 cars.
William McCrory, Man ..... Minneapolis, Minn.
T. W. Heintzelman, M. M .. Minneapolis, Minn.
Minneapolis & St. L. Ry. 4–8½ g. 425 m. 69 lo. 2,046 c.
W. H. Truesdale, Supt .... Minneapolis, Minn.
Geo. F. Wilson, Supt. of M. Minneapolis, Minn.
Mississippi, Terre Aux Boeufs & Lake R. R.
29 miles. In progress.
M. R. Spelman, Supt .... New Orleans, La.
Mississippi & Tenn. R. R. 4–8½ g. 101 m. 12 lo. 194 c.
M. Burke, Gen. Supt .... Memphis, Tenn.
J. C. Ramsey, M. M .... Memphis, Tenn.
S. J. Bolton, M. C. B .... Memphis, Tenn.
Missouri, Kansas & Texas Ry. (See Mo. Pac.; (2) Div.)
Missouri Pacific Ry. (Leased and operated lines.)
4–8½ g. 6,005 m. 697 lo. 19,748 cars.
A. A. Talmage, Gen. Man .... St. Louis, Mo.
R. B. Lyle, Pur. Agt .... St. Louis, Mo.
(1), (2) and (3) Divs.:
John Hewitt, Supt. Mach .... St. Louis, Mo.
John Hodge, Supt. Car Dep ...... St. Louis, Mo.
(4), (5) and (6) Divs.:
O. A. Haynes, S. M. P. & M ..... St. Louis, Mo.
H. H. Sessions, M. C. B .... St. Louis, Mo.
(1) Missouri Pacific Ry. 1,025 m. 152 lo. 4,813 cars.
A. M. Hager, Supt .... Sedalia, Mo.
Le Roy Bartlett, M. M .... St. Louis, Mo.
Geo. Walshe, M. M .... Sedalia, Mo.
W'n Div.: W. W. Fagan, Supt ..... Atchison, Kan.
(2) Mo., Kan. & Tex. Ry. 1,308 m. 140 lo. 4,248 cars.
S. Irvin, Asst. Supt. Car Dep ...... Sedalia, Mo.
J. B. Vandyne, Supt .... Parsons, Kan.
J. W. Haines, M. M .... Parsons, Kan.
(3) Central Branch Un. Pac. R. R. 388 m. 30 lo. 601 c.
W. W. Fagan, Supt .... Atchison, Kan.
H. V. Faries, M. M .... Atchison, Kan.
J. W. Blackburn, A. Supt. Car D. Atchison, Kan.
(4) St. L., I. Mt. & So'n Ry. 909 m. 141 lo. 4,839 c.
Wm. Kerrigan, Supt .... St. Louis, Mo.
St. Louis Div.: W. H. Harris, M. M. De Soto, Mo.
Ark. Div.: J. J. Frey, Asst. Supt. Little Rock, Ark.
R. M. Richardson, M. M .... Little Rock, Ark.
(5) Intern'l & Gr. No'n R. R. 891 m. 74 lo. 1,597 c.
Jos. Herrin, Supt .... Palestine, Tex.
O. H. Johnson, M. M .... Palestine, Tex.
(6) Texas & Pacific Ry. 1,489 m. 143 lo. 3,438 c.
Warder Cumming, Supt .... Dallas, Tex.
Eastern, New Or. & Trans Continental Divs.:
J. Williams, Supt .... Marshall, Tex.
Perry Stevens, M. M .... Marshall, Tex.
E. R. Smith, M. M. & C. B .. New Orleans, La.
Rio Gr. Div.: J. C. Barber, Supt. Big Springs, Tex.
Wm. Foley, M. M .... Big Springs, Tex.
Mobile & Ala. Grand Trunk R. R. 5 g. 59 m. 2 lo. 23 c.
Wm. H. Pratt, Trustee .... Mobile, Ala.
Mobile & Girard R. R. 5 g. 84 m. 7 lo. 112 cars.
W. L. Clark, Gen Supt .... Columbus, Ga.
J. C. Albrecht, M. M .... Columbus, Ga.
A. J. Nix, M. C. B .... Columbus, Ga.
Mobile & Montgomery Ry. (See Louis. & Nash.)
Mobile & Northwestern R. R. 3 g. 31 m. 2 lo. 16 c.
Thomas T. A. Lyon, Pres .... Glendale, Miss.
Mobile & Ohio R. R. 5 g. 528 m. 75 lo. 1,353 cars.
G. Jordan, V. Pr. & Gen. Man ..... Mobile, Ala.
F. Jordan, Pur. Agt .... Mobile, Ala.
M. T. Carson, Gen. M. M .... Whistler, Ala.
J. T. Booth, M. C. B .... Whistler, Ala.
So'n Div.: J. G. Motley, Supt .... Mobile, Ala.
John Fitzgerald, M. M .... Macon, Miss.
No'n Div.: E. S. Hosford, Supt .. Jackson, Tenn.
M. M .... Jackson, Tenn.
Mobile & Spring Hill R. R. 5 g. 8 m. 1 lo. 16 cars.
F. Ingate, Supt .... Mobile, Ala.
Moline & Southeastern R. R. 3-6 g. 8 m. 2 lo. 26 c.
R. Battersly, Gen. Man .... Coal Valley, Ill.
Mont Alto R. R. 4-9 g. 21 m. 2 lo. 8 cars.
G. B. Wiestling, Supt. & P. A .... Mont Alto, Pa.
Montgomery & Eufaula Ry. (See Cen. of Ga.)
Montgomery Southern Ry. 3 g. 20 m. 1 lo. 15 cars.
S. D. Hubbard, Jr., Gen. Man. Montgomery, Ala.
Montour R. R. 4-8½ g. 12 m. 2 lo. 130 cars.
C. R. Brown, Supt. & Pur. Agt ... Imperial, Pa.
Henry Newman, M. C. B .... Imperial, Pa.
Montpelier & Wells Riv. R. R. 4–8½ g. 38 m. 3 lo. 86 c.
W. A. Stowell, Supt .... Montpelier, Vt.
Montreal, Portland & Boston Ry. (See Passumpsic.)
Montreal & Sorel Ry. 4–8½ g. 47 m. 3 lo. 35 c.
C. N. Armstrong, G. M. & Pur. Agt. Sorel, Que.
J. F. Armstrong, Gen. Supt .... Sorel, Que.
G. W. Pangborn, M. M .... Sorel, Que.
Montrose Ry. 3 g. 28 m. 3 lo. 24 cars.
T. G. Walter, Gen. Supt ... Tunkhannock, Pa.
Morgan's Louis. & Tex. R. R. 4–8½ g. 266 m. 44 l. 885 c.
J. Kruttschnitt, Supt .... New Orleans, La.
C. Trumpy, Pur. Agt .... New Orleans, La.
N. Tilton, M. M .... Algiers, La.
Wm. O'Brien, M. C. B .... Algiers, La.
Mount Washington R. R. 5-3 g. 3 m. 6 lo. 6 cars.
Walter Aiken, Gen. Man .... Franklin, N. H.
Muncy Creek Ry. (See Wmspt. & No. Br.)

N

Nantasket Beach R. R. 4-8½ g. 6 m. 5 lo. 25 c.
George L. Keyes, Gen. Supt ...... Boston, Mass.
Nantucket R. R. 3 g. 4 m. 1 lo. 5 cars.
Philip H. Folger, Supt .... Boston, Mass.
Napanee, Tamworth & Quebec Ry. In progress.
Ed. W. Rathbun, Man. Dir .... Deseronto, Ont.
R. A. Carter, Supt .... Deseronto, Ont.
Narragansett Pier R. R. 4-8½ g. 8 m. 2 lo. 11 c.
G. T. Lanphear, Supt. & Pur. Agt. Peacedale, R. I.
Nashua & Rochester R. R. (See Wor. & Nash.)
Nashville, Chattanooga & St. Louis Ry.
5 g. 539 miles 87 lo. 1,979 cars.
J. W. Thomas, G. Man. & P. Agt. Nashville, Tenn.
M. J. C. Wrenne, Supt .... Nashville, Tenn.
James Cullen, M. M. & C. B .. Nashville, Tenn.
Nashville & Florence R. R. 5 g. 20 m.
J. T. Craik, Supt .... Columbia, Tenn.
Natchez, Jackson & Col. R. R. 3–6 g. 100 m. 7 lo. 72 c.
E. D. Frost, Gen. Supt .... Natchez, Miss.
National Car Company. 4,000 freight cars.
L. Millis, Pres .... Boston, Mass.
Stewart Stranahan, Sec. & Tr. St. Albans, Vt.
John B. Fletcher, Supt .... St. Albans, Vt.
Naugatuck R. R., 4–8½ g. 61 miles, 14 lo. 384 cars.
Geo. W. Beach, Supt .... Waterbury, Ct.
Henry Hanford, M. M .... Bridgeport, Ct.
Geo. W. Gray, M. C. B .... Bridgeport, Ct.
Nebraska, Topeka, Iola & Memphis R. R. 4–8½ g. 16 m.
H. M. Clarke, Gen. Man .... Girard, Kan.
C. H. Malin, Gen. Supt .... Girard, Kan.
Nevada Central R. R. (See Union Pac.; (7) Div.)
Nevada County N. G. R. R. 3 g. 23 m. 3 lo. 46 cars.
John F. Kidder, Supt .... Grass Valley, Cal.
Jas. McCormick, M. M. & C. B. Grass Valley, Cal.
Nevada & Oregon R. R. 3 g. 30 m. 25 cars.
D. W. Balch, Supt .... Reno, Nev.
New Brunswick Ry. 4–8½ g. 419 m. 20 lo. 357 cars.
E. R. Burpee, Gen. Man .... Woodstock, N. B.
Jesse Mathews, M. M .... Gibson, N. B.
T. N. Burpee, M. C. B .... Gibson, N. B.
J. J. Seely, Pur. Agt .... Gibson, N. B.
Thos. Armstrong, M. M .... St. Andrew's, N. B.
G. Houlton, M. C. B .... St. Andrew's, N. B.
New Brunswick & Can. Ry. (See New Brun.)
New Canaan R. R. 4-8½ g. 8 m. 2 lo. 4 cars.
Wm. St John, Supt .... New Canaan, Ct.
New Castle R. R. 3-6 g. 5 m. 2 lo. 76 cars.
Geo. Pearson, Gen. Man .... New Castle, Pa.
New Castle & Beaver Valley R. R. (See Penna. Co.)
New Haven & Derby R. R. 4–8½ g. 13 m. 4 lo. 70 c.
E. S. Quintard, Supt .... New Haven, Conn.
J. M. Whitlock, M. M. & C. B. New Haven, Conn.
New Haven & No'mpton. 4–8½ g. 170 m. 27 lo. 598 c.
S. B. Opdyke, Jr., Supt .... New Haven, Ct.
C. N. Yeamans, Pur. Agt ...... New Haven, Ct.
Henry Fox, M. M .... New Haven, Ct.
John Sweeny, M. C. B .... New Haven, Ct.
New Jersey & New York Ry. 4–8½ g. 37 m. 6 lo. 40 c.
J. D. Hasbrouck, Gen. Man .. Jersey City, N. J.
J. S. Drake, Supt. & M. M ...... Hillsdale, N. J.
L. B. Van Wagonen, M. C. B .... Hillsdale, N. J.
N. J. Southern Ry. (See Phil. & Read.; N. J. So. Div.)
New London Northern R. R. (See Central Ver.)
New Orleans Pacific Ry. (See Mo. Pac.; (6) Div.)
New Orleans & Carrollton R. R.
4–8½ g. 15 m. 12 lo. 79 cars.
C. V. Haile, Supt .... New Orleans, La.
John Dahmer, M. M .... New Orleans, La.
Jas. Thorn, M. C. B .... New Orleans, La.
New Orleans & Mobile R. R. (See Louis. & Nash.)
N. O. & Northeastern R. R. (See Cin., N. O. & Tex. Pac.)
New Orleans & Selma R. R. 5 g. 21 m. 1 lo. 8 cars.
L. B. Schofield, Supt .... Selma, Ala.
N. Y. Central & Hudson River R. R.
4–8½ g. 983 m. 676 lo. 25,161 cars.
J. M. Toucey, Gen. Supt .... New York, N. Y.
R. C. Moore, Pur. Agt .... New York, N. Y.
Wm. Buchanan, Supt. M. P ... New York, N. Y.
L. Garey, Supt. Car Dept .... New York, N. Y.
N. Y. & Har. Div.: C. M. Bissell, Supt. do.
P. McQ. Gibson, M. M .... New York, N. Y.
C. E. Garey, M. C. B .... Morrisania, N. Y.
Hud. Riv. Div.: C. M. Bissell, Supt. N. York, N. Y.
Peter Smith, M. C. B .... New York, N. Y.
E'n Div.: Zenas C. Priest, Supt ...... Utica, N. Y.
John Ortton, M. M .... West Albany, N. Y.
D. Hoit, M. C. B .... West Albany, N. Y.
W'n Div.: Geo. H. Burrows, Supt. Rochester, N. Y.
S. L. White, M. M .... Syracuse, N. Y.
Amos Gould, M. M .... E. Buffalo, N. Y.
E. A. Olmstead, M. C. B ...... E. Buffalo, N. Y.
C. H. Burchard, M. C. B .. E. Rochester, N. Y.
Rd. Donaby, M. C. B .... Niagara Falls, N. Y.
N. Y. Chic. & St. L. Ry. 4–8½ g. 513 m. 115 lo. 4,838 c.
Lewis Williams, Gen. Man .... Cleveland, O.
Jno. Mackenzie, Supt. M. P ..... Cleveland, O.
Eas'tn Div.: G. H. Kimball, Supt .. Cleveland, O.
E. A. Miller, M. M .... Conneaut, O.
West'n Div.: A. H. Evans, Act. Supt. Chicago, Ill.
Jas. Eckford, M. M .... Bellevue, O.
New York City & Northern. 4–8½ g. 54 m. 17 lo. 368 c.
Frank S. Gannon, Gen. Supt. High Bridge, N. Y.
Theo. Wheeler, M. M .... High Bridge, N. Y.
New York, Lackawanna & W'n Ry. (See Del., L. & W.)
New York, Lake Erie & Western R. R.
Robt. Harris, V. Pr. & G. Man. New York, N. Y.
(1) N. Y., L. E. & W. Div.: 4–8½ g. 1,073 m. 576 lo. 30,553 c.
E. S. Bowen, Gen. Supt .... New York, N. Y.
J. A. Hardenburgh, Pur. Agt. New York, N. Y.
F. M. Wilder, Supt. M. P. & M ... Susqueh'a, Pa.
E'n Div.: E. O. Hill, Supt ...... Jersey City, N. J.
J. H. Vreeland, M. M .... Jersey City, N. J.
J. N. Mileham, M. C. B .... Jersey City, N. J.
Del. Div.: W. J. Murphy, Supt .. Port Jervis, N. Y.
J. Van Vechten, M. M. & C. B. Pt. Jervis, N. Y.
Susq. Div.: J. Jolls, Supt .... Elmira, N. Y.
V. Blackburn, M. M .... Susquehanna, Pa.
D. B. Goodell, M. C. B .... Elmira, N. Y.
Buf. & R. Divs.: Chas. Neilson, Supt.; and
G. B. Ross, M. M .... Buffalo, N. Y.
M. Wilder, M. C. B .... Buffalo, N. Y.
B. & S.-W. Div.: C. A. Brunn, Supt. do.
W'n Div.; W. B. Coffin, Supt .. Hornellsville, N. Y.
Geo. H. Griggs, M. M ..... Hornellsville, N. Y.
N. Y. & Greenwood L. Ry. 4–8½ g. 44 m. 8 lo. 53 c.
Stephen Smith, Supt .... Jersey City, N. J.
G. A. Hill, M. M .... Pompton, N. J.
(2) N. Y., Pa & O. Div.: 4–8½ g. 565 m. 218 lo. 7,394 c.
J. M. Ferris, Gen. Man .... Cleveland, Ohio.
J. H. Holway, Pur. Agt .... Cleveland, Ohio.
Wm. Fuller, Gen. M. M. & C. B ... Cleveland, O.
S. V. Smith, Asst. Gen. M. C. B .... Kent, Ohio.
E'n Div.: A. L. Dunbar, Supt .... Meadville, Pa.
J. A. Cooper, M. M .... Meadville, Pa.
D. S. Dockstader, M. C. Rep ... Meadville, Pa.
J. T. Fosdick, For. Car Rep. Salamanca, N. Y.
W'n Div.: T. A. Phillips, Supt .... Galion, O.
Wm Hill, M. M .... Galion, O.
J. W. Holmes, For. Car Rep .... Galion, O.
Geo. Wilson, For. Car Rep .... Dayton, Ohio.
Maho'g Div.: N. F. Wood, Supt ..... Cleveland, O.
N. Wright, M. M .... Cleveland, O.
C. N. Thorp, M. C. Rep .... Cleveland, O.
New York, New Haven & Hartford R. R.
4–8½ g. 203 m. 123 lo. 2,768 cars.
E. M. Reed, V. P. & Gen. Man. New Haven, Ct.
R. N. Dowd, Pur. Agt .... New Haven, Ct.
N. Y. & N. H. Div.: W. H. Stevenson, Supt ... N. Y.
Shore Line and Air Line Divs.:
O. M. Shepard, Supt .... N. Haven, Ct.
H. Kettendorf, Supt. M. P ... New Haven, Ct.
Jas. Denver, M. C. B .... New Haven, Ct.
Hart. Div.: C. S. Davidson, Supt ... Hartford, Ct.
John Henny, Jr., Supt. M. P. & M. C. B ... do.
N. Y., Ontario & Western Ry. (See N. Y., W. Sh. & Buf.)
N. Y., Pennsylvania & Ohio R. R. (See N. Y., L. E. & W.)
New York, Philadelphia & Norfolk R. R.
4-8½ g. 10 m. 1 lo. 4 cars.
J. L. Bates, Supt .... Pocomoke City, Md.
New York, Providence & Boston R. R.
4–8½ g. 83 m. 29 lo. 430 cars.
J. B. Gardner, Supt .... Providence, R. I.
Giles F. Ward, Pur. Agt ..... Stonington, Conn.
J. H. Anderson, M. M. & C. B. Providence, R. I.
N. Y., Susquehanna & W'n. 4–9 g. 147 m. 28 lo. 991 c.
F. A. Potts, Gen. Man .... New York, N. Y.
C. D. McKelvey, Asst. Supt. Jersey City, N. J.
C. T. Demarest, Pur. Agt ..... New York, N. Y.
W. C. Ennis, M. M. & C. B ... Wortendyke, N. J.
New York, Texas & Mexican Ry.
4–8½ g. 92 m. 6 lo. 95 cars.
P. Moneta, Gen. Man .... Victoria, Tex.
C. L. Leslie, Gen. Supt .... Rosenberg, Tex.
E. A. Campbell, M. M .... Victoria, Tex.
New York, West Shore & Buffalo and New York, Ontario & Western Rys.
4–8½ g. 850 m. 98 lo. 2,907 c.
Chas. Paine, Gen. Man .... New York, N. Y.
J. E. Childs, Gen. Supt .... New York, N. Y.
P. S. Bemis, Pur. Agt .... New York, N. Y.
R. H. Soule, Supt. M. P .... New York, N. Y.
Mid. Div.: N. R. Hankins, Supt. Middletown, N. Y.
Edw. Minshull, M. M. & C. B. Middletown, N. Y.
No'n Div.: C. W. Lanpher, Supt .... Norwich, N. Y.
So. Div.: E. Canfield, Supt .... Tappan, N. Y.
Harry Linn, M. M.
Walkill Ry. G. H. Graves, Supt .. Kingston, N. Y.
Syr., Ont. & N. Y.: A. Allen, Supt. Syracuse, N. Y.
George W. West, M. M .... Syracuse, N. Y.
Wm. J. McMichael, M. C. B .... Syracuse, N. Y.
N. Y., Woodhaven & Rockaway R. R. (See Long Is.)
N. Y. & Greenwood Lake Ry. (See N. Y., L. E. & W.)
N. Y. & Manhattan Beach Ry. (See Long Island.)
New York & Long Branch R. R. (See Phil. & Read.)
New York & New England R. R.
4–8½ g. 478 m. 127 lo. 3,399 cars.
S. M. Felton, Jr., Gen. Man ...... Boston, Mass.
W. W. McKim, Pur. Agt .... Boston, Mass.
Ross Kells, Supt. M. P. & M ...... Boston, Mass.
W. G. Tabor, M. M .... Boston, Mass.
H. E. Barker, Gen. Fore .... Norwood, Mass.
East Div: C. C. F. Bent, Supt ...... Boston, Mass.
Nor. Div.: P. St. M. Andrews, Supt ... Norwich, Ct.
W. A. Stone, M. M .... Norwich, Ct.
Prov. Div.: L. W. Palmer, Supt .. Providence, R. I.
Hfd. Div.: E. Holbrook, Supt .... Hartford, Ct.
E. M. Humstone, M. M .... Hartford, Ct.
D. F. Andregg, For. C. Dept .... Hartford, Ct.
New York & Sea Beach R. R. 4-8½ g. 6 m. 4 lo. 40 c.
C. W. Douglass, Gen. Man ... Bay Ridge, N. Y.
W. A. Sheldon, Supt .... Bay Ridge, N. Y.
Newark, Somerset & Straitsville R. R. (See B. & O.)
Newburg, Dutchess & Conn. R. R. 4–8½ g. 59 miles.
C. L. Kimball, Gen. Supt .... Matteawan, N. Y.
W. G. Van Buskirk, M. M. & C. B., Dutchess Junction, N. Y.
Newfoundland Ry. 3-6 g. 45 m. 7 lo. 41 c.
C. X. Hobbs, Gen. Man .... St. John's, N'f'd.
Norfolk Southern R. R. 4–8½ g. 95 m. 11 lo. 182 c.
M. K. King, Gen. Man. & Pur. Agt. Norfolk, Va.
J. S. Whitworth, M. M. & C. B .... Norfolk, Va.
Norfolk & Ocean View Narrow Gauge R. R.
3 g. 8 m. 2 lo. 9 cars.
W. H. Taylor, Pres .... Norfolk, Va.
Norfolk & Western R. R. (See Shenandoah Val.)
North-Eastern R. R. of Ga. 5 g. 72 m. 2 lo. 20 cars.
H. R. Bernard, Supt .... Athens, Ga.
North-Eastern R. R. (S. C.) (See Wil. & Wel.)
North Pacific Coast R. R. 3 g. 84 m. 12 lo. 320 cars.
David Nye, Gen. Supt .... San Rafael, Cal.
W. F. Russell, Pur. Agt .... San Francisco, Cal.
J. Fowler, M. M .... Saucelito, Cal.
North Shore Ry. 4–8½ g. 201 m. 36 lo. 993 c.
W. Wainwright, Gen. Man .... Quebec, Can.
A. Davis, Supt. & M. M .... Quebec, Can.
Northern (N. H.), and Concord & Claremont Rys.
4–8½ g. 173 m. 25 lo. 569 cars.
Geo. E. Todd, Supt .... Concord, N. H.
M. M. & C. B. & Pur. Agt .. do.
Northern (N. J.) R. R. (See N. Y., L. E. & W'n.)
Northern Central Ry. (See Penna. R. R. (6) Div.)
North'n Pacific R. R. 4–8½ g. 2,207 m. 391 lo. 9,897 c.
T. F. Oakes, Gen. Man .... St. Paul, Minn.
John H. Ames, Gen. Pur. Agt .. St. Paul, Minn.
Geo. W. Cushing, Supt. M. P., M. & R. S. do.
(1) E'n Div.: J. T. Odell, A. Gen. Man. St. Paul, Minn.
H. J. Small, A. S. Mach .... Brainerd, Minn.
1st Gr. Div.: M. C. Kimberly, Supt. St. Paul, Minn.
Frank Howard, M. C. B .... Brainerd, Minn.
2d Grand Div.: J. M. Graham, Supt .. Fargo, Dak.
C. C. Quinn, M. M .... Fargo, Dak.
3d Gd. Div.: D. R. Taylor, Supt .... Mandan, Dak.
E. F. Doran, M. M .... Mandan, Dak.
4th Gr. Div.: S. R. Ainslie, Supt .. Glendive, Mont.
S. L. Bean, M. M .... Glendive, Mont.
G. S. La Rue, M. M .... Billings, Mont.
(2) W'n Div.: J. M. Buckley, Asst. Gen. Man.; and
Otis Sprague, Supt .... New Tacoma, W. T.
H. D. Sanborn, Pur. Agt .... Portland, Ore.
W. T. Small, A. S. Mach .... Sprague, W. T.
Robt. Walker, M. C. B .... Sprague, W. T.
F. C. Ford, M. M .... New Tacoma, W. T.
S. Wishart, M. C. B .... New Tacoma, W. T.
Mo. Div.: B. F. Matthias, Supt .... Bismark, Dak.
Pend d'Ore Div.: F. F. Griffin, Supt. Sprague, W. T.
J. Evans, M. M .... Sprague, W. T.
Northern & North-W'n Rys. 4-8½ g. 378 m. 50 lo. 1,195 c.
James Webster, Supt .... Toronto, Can.
W. C. Schreeber, Pur. Agt .... Toronto, Can.
P. Clarke, M. M .... Toronto, Can.

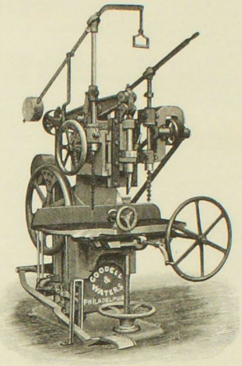
O

Ogdensburg & Lake Champlain R. R.
4–8½ g. 122 m. 33 lo. 1,694 cars.
A. A. Gaddis, Gen. Man ...... Ogdensburg, N. Y.
Levi Hasbrouck, Pur. Agt .. Ogdensburg, N. Y.
Abr. Klohs, Supt. & M. M .... Malone, N. Y.
J. N. Brown, M. C. B .... Malone, N. Y.
Ohio Central R. R. 4–8½ g. 325 m. 46 lo. 4,760 cars.
John E. Martin, Gen. Man .... Toledo, O.
T. M. Peelar, Supt .... Bucyrus, O.
F. W. Stewart, Pur. Agt .... Toledo, O.
J. B. Morgan, M. M. & C. B .... Bucyrus, O.
Ohio Southern R. R. (See Ind., Bloom. & W'n.)
Ohio & Mississippi Ry. 4–9 g. 616 m. 113 lo. 2,501 cars.
W. W. Peabody, Gen. Man ...... Cincinnati, O.
G. E. Atwood, Pur. Agt .... Cincinnati, O.
J. H. Setchel, Gen. M. M ...... Cincinnati, O.
Cin. Div.: C. B. Cole, Supt .... Seymour, Ind.
John Thumser, M. M .... Seymour, Ind.
J. P. Coulter, M. C. B .... Aurora, Ind.
Arthur Donaldson, M. M ...... Vincennes, Ind.
St. L. & Sp. Div.: C. M. Stanton, Supt. St. Louis, Mo.
J. W. Stokes, M. M. (Spring. Div.) .. Pana, Ill.
Louisv. Div.: C. B. Cole, Supt ..... Louisville, Ky.
Oil City & Chicago R. R. (See Buff., N. Y. & Phil.)
Oil City & Ridgway R. R. 4–8½ g. 6 m. 1 lo. 43 cars.
A. F. Kent, Gen. Man .... Oil City, Pa.
Old Colony R. R. 4–8½ g. 470 m. 115 lo. 3,124 cars.
J. R. Kendrick, Gen. Man .... Boston, Mass.
Main Li. Div.: J. H. French, Supt ... Boston, Mass.
R. W. Husted, Pur. Agt .... Boston, Mass.
J. K. Taylor, M. M .... Boston, Mass.
M. C. B .... Boston, Mass.
Cape Cod Div.: C. H. Nye, Supt .. Hyannis, Mass.
No. Div.: S. A. Webber, Supt .... Fitchburg, Mass.
George W. Reynolds, M. M ...... Taunton, Mass.
Sam. Stevens, M. C. B .... Taunton, Mass.
Oregon Ry. & Navigation Co.
3 & 4–8½ g. 531 m. 52 lo. 1,288 cars.
C. H. Prescott, Manager .... Portland, Ore.
F. T. Dodge, Supt. (Riv. Div.) .... Portland, Ore.
H. S. Rowe, Supt. (Ry Div.) ...... Portland, Ore.
J. M. Drake, Pur. Agt .... Portland, Ore.
C. C. Hobart, Gen. M. M .... The Dalles, Ore.
Chas. A. Phipps, M. C. B ...... The Dalles, Ore.
N. G. Div.: Wm. Reed, Man .... Portland, Ore.
James Walch, M. M .... Portland, Ore.
Oregon & California R. R. 4–8½ g. 333 m. 23 lo. 576 c.
R. Koehler, Act. Man .... Portland, Ore.
J. Brandt, Gen. Supt .... Portland, Ore.
A. Brandt, M. M .... Portland, Ore.
Owensboro & Nashville R. R. 5 g. 44 m. 3 lo. 70 c.
O. M. Dunn, Supt .... Owensboro, Ky.
H. M. Gabel, M. M. & C. B .... Owensboro, Ky.

Goodell & Waters

PHILADELPHIA, PA.

Wood-Working Machinery



HEAVY CAR MORTISER.

FOR

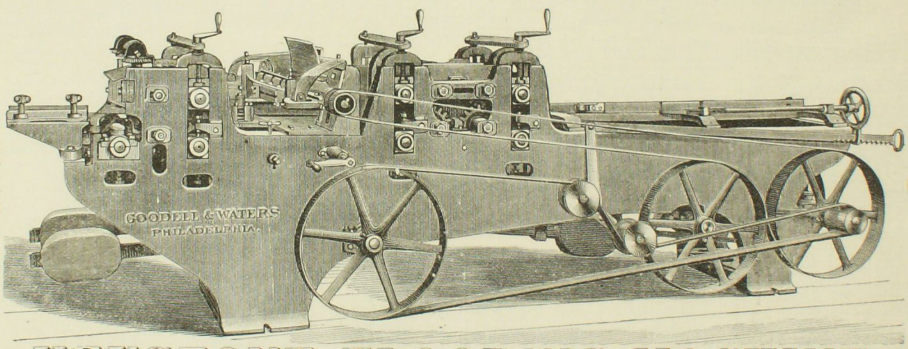
RAPID PLANING AND MATCHING,
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FINISHING,
MORTISING,
BORING, ETC.

OUR
KEYSTONE
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MACHINE

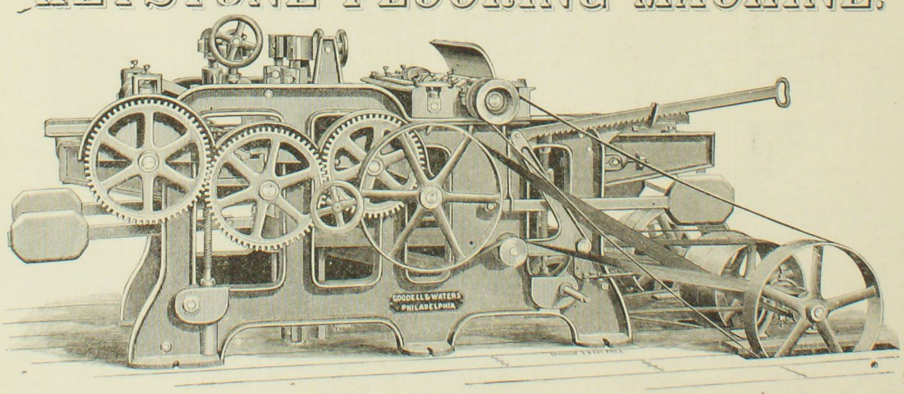
has now an established reputation as a special machine for rapid and good work.

We have confidential statistics and facts of great practical value to customers who are about to purchase.

In this machine we have retained the most desirable adjustments of the Woodworth Machine, and especially of the Woodbury Pressure Bar; we apply these bars and adjustments to both bottom and topheads and they will be found to be new in design, SELF-ACTING AND RELIABLE.



KEYSTONE FLOORING MACHINE.



CAR SILL PLANER AND DOUBLE-SURFACER AND JOINTER.

OUR ASSORTMENT
OF
GENERAL
MACHINERY

is larger than ever and continually increasing in variety. It now embraces first-class machines for bandsawing, slitting and cut-off sawing, resawing and scroll sawing, jointing, grooving, molding, tenoning, turning, mortising, shaping, etc. with requisite shafting, pulleys, hangers, arbors, knives, cutters, chisels, and fixtures for railway and street car builders, ship joiners, makers of heavy and light agricultural implements, pianos, organs, clock cases, furniture, boxes, toys, modern wainscot and hard wood finish.

Our new Catalogue is now ready, and we propose to give it a liberal distribution among mill men, foremen and workmen. Send us your personal address if you wish a copy.

GOODELL & WATERS,

31st and Chestnut Streets, - - - - - Philadelphia, Pa.

Oxford & Henderson R. R. 4-8½ g. 13 m. 2 lo. 11 c.
James A. White, Gen. Supt...Henderson, N. C.
James E. Lawrence, M. M... Henderson, N. C.

P

Pacific Coast Ry. 3 g. 64 m.
J. M. Fillmore, Manager San Luis Obispo, Cal.
W. H. Masterman, M. M. & C. B. do.
Painesville & Youngstown Ry. 3 g. 65 m. 7 lo. 319 c.
R. K. Paige, Rec. & Man.........Painesville, O.
J. A. Newcome, Supt............Painesville, O.
E. B. Baldwin, M. M............Painesville O.
Panama R. R. 5 g. 48 m. 16 lo. 608 cars.
H. A. Woods, Supt........ Aspinwall, U. S. Col.
E. Z. Penfield, Pur. Agt.......New York, N. Y.
D. P. Wright, M. M........Aspinwall, U. S. Col.
Passumpsic R. R. 4-8½ g. 147 m. 28 lo. 1,101 cars.
E. Raymond, Pres. & Pur. Agt..Boston, Mass.
H. E. Folsom, Supt............Lyndonville, Vt.
L. L. Brigham, M. M........ .Lyndonville, Vt.
L. F. Woodard, M. C. B ......Lyndonville, Vt.
Paulding & Cecil Railway. 4-8½ g. 7 m. 3 lo. 28 c.
S. Frank Eagle, Pres.....................Cecil, O.
Paw Paw and Toledo & South Haven R. Rds.
3 g. 19 m. 2 lo. 11 cars.
John Ihling, Supt...................Lawton, Mich.
Peach Bottom R. R. 3 g. 55 m. 6 lo. 52 cars.
G. R. Dickey, Supt. & Pur. Agt......York, Pa.
E. H. Williams, M. C. B...............York, Pa.
W. P. Kirk, M. M.....................Oxford, Pa.
Pemigewasset Valley R. R. 4-8½ g. 21 m. 2 lo. 127c.
J. Thomas Vose, Pres........ .. Boston, Mass.
Pennsylvania Co.'s (10) Roads.
4-9 g. 3,222 m. 920 lo. 32,809 cars.
(A) Gen. Divs. (1), (2), (3), (4) and (5).
Wm. A. Baldwin, Gen. Man.....Pittsburg, Pa.
John Thomas, Gen. Supt...... Pittsburg, Pa.
Wm. Mullins, Gen. Pur. Agt......Pittsburg, Pa.
Joseph Wood, Supt. M. P.... .Fort Wayne, Ind.
(1) Pittsburg, Ft. Wayne & Chicago Ry.
4-9 g. 468 m. 288 lo. 8,023 cars.
E'n Div.: A. B. Starr, Supt.......Allegheny, Pa.
Geo. J. Parkin, M. M..... ....Allegheny, Pa.
D. M. Peppard, M. M........ . Crestline, O.
W'n Div.: C. D. Law, Supt.....Ft. Wayne, Ind.
F. D. Casanave, M. M........Ft. Wayne, Ind.
A. H. Somers, Gen. For. Shops...Chicago, Ill.
(2) Ashtabula & Pittsburg, and
(3) Erie & Pittsburg R. Rds. 221 m. 29 lo. 1,362 c.
John M. Kimball, Supt.......Youngstown, O.
J. A. Wood, Gen. For. Shops........Erie, Pa.
(4) Cleveland & Pittsb'g R. R. 225 m. 97 lo. 3,534 c.
R. F. Smith, Asst. Man.... .....Cleveland, O.
Philip Bruner, Supt.............Wellsville, O.
W. F. Beardsley, Mast. of Mach. Wellsville, O.
(5) Nc-W'n Ohio Ry.: J. S. Morris, Supt...Toledo, O.
(B) Gen. Divs. (6), (7), (8) and (9).
Jas. McCrea, Gen. Man...........Columbus, O.
Wm. Mullins, Gen. Pur. Agt ...Pittsburg, Pa.
E. B. Wall, Supt M. P..............Columbus, O.
(6) Pittsburg, Cincinnati & St. Louis Ry.
4-9 g. 592 m. 196 lo. 5,746 cars.
Robt. Curtis, Gen. M. M.......... Columbus, O.
P. & Col. Div.: E. B Taylor, Supt. Dennison, O.
C. B. Street, M. M. ....Dennison, O.
Thos. Chamberlain, M. C. B... Columbus, O.
C. & M. V. Div.: W. F. Black, Supt. Zanesville, O.
Leroy Kells, M. M..... ....Cincinnati, O.
Daniel Jewell, M. C. B..... ....Lancaster, O.
Li. Mi. Div.: Ralph Peters, Supt....Cincinnati, O.
Leroy Kells, M. M..............Cincinnati, O.
Jos. Underwood, Gen. Foreman. Cincinnati, O.
(7) Chicago, St. Louis & Pittsburg R. R.
4-9 g. 551 m. 139 lo. 1,788 cars.
Wm. Swanston, Gen. M. M. (7,8&9) Indpls., Ind.
1 & 2 Divs.: J. F. Miller, Supt...Richmond, Ind.
3 & 4 Divs.: Chas. Watts, Supt. Logansport, Ind.
W. W. Reynolds, M. M .....Logansport, Ind.
Chas. H. Starr, M. C. B......Logansport, Ind.
W. C. Arp, Gen. For.......Indianapolis, Ind.
(8) Indianap. & Vincennes Rd. 117 m. 11 lo. 303 cars.
Jas. J. Turner, Supt.......Indianapolis, Ind.
(9) Jeffersonville, Madison & Indianapolis R. R.
4-9 g. 217 m. 47 lo. 784 cars.
E. W. McKenna, Supt..........Louisville, Ky.
Edw. Austin, M. C. B .. ..Jeffersonville, Ind.
(C) (10) Terre Haute & Indianapolis R. R.
4-9 g. 387 m. 88 lo. 3,702 cars.
Joseph Hill, Gen. Supt.... ....St. Louis, Mo.
C. R. Peddle, P. Agt...........St. Louis, Mo.
Geo. H. Prescott, S. M. P. & M. Terre Haute, Ind.
E. D. Carter, M. C. B ......Terre Haute, Ind.
Clinton Idler, M. M....... . .Indianapolis, Ind.
Chas. Butler, M. M..... ....Effingham, Ill.
A. W. Quakenbush, M. M...Logansport, Ind.
Pennsylvania R. R. Co.'s Roads. (7 Gen. Divs.)
4-9 g. 3,158 m. 1,459 loco. 66,816 cars.
Chas. E. Pugh, Gen Man......Philadelphia, Pa.
Enoch Lewis, Pur. Agt.......Philadelphia, Pa.
John Reilly, Supt. Trans......Philadelphia, Pa.
T. N. Ely, Gen S. M. P..............Altoona, Pa.
(1) Pennsylvania R. R. Divs.
4-9 g. 1,139 m. 709 lo. 48,087 cars.
S. M. Prevost, Gen Supt. ....Altoona, Pa.
Frank L. Sheppard, Supt. M. P..Altoona, Pa.
G. W. Strattan, M. M.. ....Altoona, Pa.
Jno. P. Levan, Gen. Fore.... ....Altoona, Pa.
Phila. Div.: Tho. Gucker, Supt. Philadelphia, Pa.
H. D. Garrett, M. M....W. Philadelphia, Pa.
I. W. Van Houten, Gen. For....W. Phila., Pa.
Mid. Div.: O. E. McClellan, Supt. Harrisburg, Pa.
E. L. Caum, M. M...........Harrisburg, Pa.
Samuel W. Myers, Gen. For. Harrisburg, Pa.
Altoona Div.: Jas. Reed, Supt ....Altoona, Pa.
Pitts. Div.: Robert Pitcairn, Supt....Pittsburg, Pa.
D. O. Shaver, M. M...............Pittsburg, Pa.
J. G. Stewart, Gen. For........Pittsburg, Pa.
W. Pa. Div.: A. P. Kirtland, Supt. Blairsville, Pa.
Wm. B. Norris, M. M..........Blairsville, Pa.
M. H. Falls, Gen. For..........Blairsville, Pa.
Fred. Div.: J. B. Hutchinson, Supt.....York, Pa.
Tyrone Div.: S. S. Blair, Supt........Tyrone, Pa.
Lew. Div.: Wm. M. Phillips, Supt. Lewistown, Pa.
Bed. Div.: R. L. Holliday, Supt......Bedford, Pa.
Monong. Div.: David M. Watt, Supt. Pittsburg, Pa.
Wm. Lininger, M. M........ ....Pittsburg, Pa.
(2) United R. Rs. of N. J. Divs. 575 m. 305 lo. 4,962 c.
F. Wolcott Jackson, Gen. St..Jersey City, N. J.
H. S. Hayward, Supt. M. P...Jersey City, N. J.
David H. Baker, Gen. For...Jersey City, N. J.
N. Y. Div.: Robt. E. Pettit, Supt. Jersey City, N. J.
L. A. Bosdevex, M. M. ..Jersey City, N. J.
E. F. Bosdevex, Gen. For..Jersey City, N. J.
Belv. Div.: J. A. Anderson, Supt. Lambertv., N. J.
R. McDowell, M. M.......Lambertville, N. J.
Amboy Div.: I. S. Buckalew, Supt. Camden, N. J.
Thos. Kerr, M. M....... ....So. Amboy, N. J.
P. S. Bogart, Gen. For......So. Amboy, N. J.
Camden & At. Rd.: W. N. Bannard, Supt., and
Rufus Hill, M. M.. ....Camden, N. J.
Samuel Wills, M. C. B ....Camden, N. J.
(3) West Jersey R. R. 4-9 g. 186 m. 25 lo. 524 cars.
Joseph Crawford, Gen. Supt ....Camden, N. J.
W. McAllister, M. M..............Camden, N. J.
C. C. Williams, Gen. For........Camden, N. J.
(4) Phila., Wilm. & Balt. R.R. 386 m. 121 lo. 1,777 c.
H. F. Kenney, Gen. Supt .....Philadelphia, Pa.
J. M. Wallis, S. M. P. ....Philadelphia, Pa.
H. D. Gordon, M. M...........Wilmington, Del.
W. H. Lungren, For. C. Shps..Wilmington, Del.
Cen. Div.: L. K. Lodge, Supt.......... Media, Pa.
Del. Div.: I. N. Mills, Supt .....Wilmington, Del.
Mo. Div.: H. H. Carter, Supt...Wilmington, Del.
(5) Phila. & Erie R. R. Divs.: 418 m. 117 lo. 3,481 c.
R. Neilson, Gen. Supt ......Williamsport, Pa.
A. O. Dayton, Supt. Mo. Po..Williamsport, Pa.
E'n. Div.: E. B. Westfall, Supt. Williamsport, Pa.
Sun. H. & W. Div.: A. Walter, Supt.; and
H. K. Stout, M. M ... ...Sunbury, Pa.
Mid. Div.: Tho. A. Roberts, Supt.....Renova, Pa.
Wm. L. Holman, M. M..........Renova, Pa.
West'n Div.: J. W. Reynolds, Supt.....Erie, Pa.
W. T. Smith, M. M......................Erie, Pa.
(6) Northern Central Ry. 4-9 g. 326 m. 152 lo. 7,627 c.
Robert Neilson, Gen. Supt...Williamsport, Pa.
A. O. Dayton, Supt. M. P....Williamsport, Pa.
A. W. Sumner, Pur. Agt... .....Baltimore, Md.
Susq. Div.: E. B. Westfall, Supt. Williamsport, Pa.
Sham. Div.: A. Walter, Supt...... ..Sunbury, Pa.
Elm. & Can. Divs.: S. Meade, Supt...Elmira, N. Y.
Jas. Strode, M. M..... .. ..Elmira, N. Y.
J. C. Dyott, Gen. For.......... ....Elmira, N. Y.
Baltimore Div.: H. W. Knapp, Supt. Baltimore, Md.
(7) Balt. & Pot. & Alex. & Fred. 128 m. 30 lo. 358 c.
H. F. Kenny, Gen. Supt.......Philadelphia, Pa.
A. W. Sumner, Pur. Agt.........Baltimore, Md.
J. M. Wallis, Supt. Mo. Po....Philadelphia, Pa.
J. M. Coale, M. M................Baltimore, Md.
G. W. Demarest, Gen. For......Baltimore, Md.
Penn. Coal Co.'s R. R. 4-3 g. 67 m. 23 eng. 3,271 c.
J. B. Smith, Gen. Supt. ....Dunmore, Pa.
And. Crane, M. M. ....Dunmore, Pa.
Geo. W. Simpson, M. C. B........Dunmore, Pa.
Pennsylvania, Slatington & New England R. R.
In progress. 4-8½ g. 18 m. 1 lo. 20 cars.
C. H. Stanton, Supt............ New York, N. Y.
Pennsylvania & Erie R. R.—Early Branch.
C. R. Early, Gen. Supt...........Ridgeway, Pa.
Pensacola & Atlantic R. R. 5 g. 161 m. 9 lo. 67 cars.
W. D. Chipley, Gen. Supt.......Pensacola, Fla.
M. J. Carroll, M. M............. Pensacola, Fla.
Pensacola & Perdido R. R. 5 g. 10 m. 5 lo. 93 cars.
B. F. Simmons, Pr. & Supt.... Pensacola, Fla.
H. W. Simmons, Pur. Agt......Pensacola, Fla.
J. C. Schulte, M. M...............Pensacola, Fla.
People's Ry. 4-8½ g. 15 m. 2 lo. 14 cars.
W. D. Pollard, Supt....... ......Pottsville, Pa.
Peoria, Decatur & Evansville Ry.
4-8½ g. 254 m. 30 lo. 1,487 cars.
G. L. Bradbury, Gen. Man.... .... Peoria, Ill.
G. R. Cobleigh, Supt. & Pur. Agt...Peoria, Ill.
P. Reilly, M. M.......................Mattoon, Ill.
Peoria & Farmington R. R. (See Cen. Ia.)
Peoria & Pekin Union Ry. 4-8½ g. 20 m. 12 lo. 106 c.
Thos. B. Burnett, Gen. Supt. & P. A. Peoria, Ill.
R. F. Hurd, M. M. & C. B.. ....Peoria, Ill.
Perkiomen R. R. 4-8½ gauge 39 miles.
D. B. Clack, Supt......Perkiomen Junction, Pa.
H. Boyd, Pur. Agt..............Norristown, Pa.
Petersburg R. R. 4-8½ g. 64 m. 10 lo. 133 cars
R. M. Sully, Gen. Supt.........Petersburg, Va.
L. E. Clark, Pur. Agt..........Petersburg, Va.
R. B. Andrews, M. M..... .....Petersburg, Va.
J. W. Fleming, M. C. B.........Petersburg, Va.
Phila., Wilmington & Balt. R. R. (See Penna. R. R.)
Peterborough & Hillsborough. (See Northern, N. H.)
Philadelphia, Newtown & New York R. R.
4-8½ g. 23 m.
W. M. Geary, Supt..............Norristown, Pa.
Phila. & Atlantic City Ry. 3-6 g. 55 m. 11 lo. 134 cars.
F. S. Urie, Supt. & Pur. Agt..Philadelphia, Pa.
John T. Keihner, M. M...........Camden, N. J.
E. Lippincott, M. C. B.... ......Camden, N. J.
Philadelphia & Erie R. R. (See Penna. R. R.; (5) Div.)
Philadelphia & Reading R. R. (and Branches.)
4-8½ g. 1,414 m. 855 lo. 55,619 cars.
John E. Wootten, Gen. Man..Philadelphia, Pa.
(1) Phila. & Read. Div.: 846 m. 539 lo. 24,606 c.
W. S. Wilson, Pur. Agt....Philadelphia, Pa.
Geo. Eltz, Supt. Trans......... Reading, Pa.
L. B. Paxson, Eng. of Mach.....Reading, Pa.
No. Pa. & Bound Brook and Bethlehem Br.:
I. A. Sweigard, Supt........Philadelphia, Pa.
Mahoney & Shamokin and other Brs.:
J. H. Olhausen, Supt......Mahoney Plane, Pa
Catawissa & Williamsport Br.:
D. C. Reinhart, Supt. ......Williamsport, Pa.
Mine Hill & Schuylkill Haven Br.:
A. A. Hesser, Supt.............Cressona, Pa.
Schuylkill & Susquehanna and Leb. & Tre. Brs.:
H. H. Tracy, Supt..... ......Pine Grove, Pa.
Reading & Columbia Br.:
A. M. Wilson, Supt ....Columbia, Pa.
(2) N. J. Central Divs.: 573 m. 316 lo. 31,013 cars.
W. W. Stearns, Gen. Supt..... Elizabeth, N. J.
B. W. Burnett, Pur. Agt ......New York, N. Y.
Cen Div.: W. Woodcock, M. M. Elizabethport, N. J.
Geo. Hackett, M. C. B. ....Elizabethport, N. J.
C. G. Williams, M. M.........Jersey City, N. J.
John Alpaugh, M. M.........Phillipsburg, N. J.
L. Br. Div.: H. H. Nieman, Supt..Long Branch, N. J.
N. J. So. Div.: R. Blodgett, Supt ...Manchester, N. J.
Wm. Montgomery, M. M....Manchester, N. J.
Chas. N. Sawyer, M. C. B....Manchester, N. J.
Lehigh & Susquehanna Div.:
W. S. Polhemus, Supt. .. Mauch Chunk, Pa.
L. C. Brastow, Supt. Mach........Ashley, Pa.
Pittsburg, Bradford & Buffalo Ry. (See Pitts. & West.)
Pittsburg, Chartiers & Youghiogheny R. R.
4-8¾ g. 19 m.
Geo. S. Griscom, Gen. Man......Pittsburg, Pa.
Pittsburg, Cincinnati & St. Louis Ry. (See Penna. Co.)
Pittsburg, Cleveland & Toledo R. R. In progress.
4-8¾ g. 43 m. 4 lo. 150 cars.
C. H. Andrews, Pres.... ......Youngstown, O.
Pittsburg, Ft. Wayne & Chicago Ry. (See Penna. Co.)
Pittsburg Southern Ry. (See Balt. & O.)
Pitts. & Castle Shannon R. R. 3-4 g. 9 m. 5 lo. 428 c.
James M. Bailey, Gen. Supt... Pittsburg, Pa.
Holmes Ward, M. M......Castle Shannon, Pa.
Wm. E. Long, M. C. B ...... Pittsburg, Pa.
Pitts. & Lake Erie R. R. 4-8¾ g. 70 m. 31 lo. 1,820 c.
W. C. Quincy, Gen. Man.........Pittsburg, Pa.
R. W. Jones, Mast. Trans.......Pittsburg, Pa.
S. W. Haines, M. M.......... ....Pittsburg, Pa.
Pitts. & Western R. R. 3 & 4-8½ g. 110 m. 18 lo. 365 c.
Pitts., Bradford & Buff. Ry. 3 g. 93 m. 8 lo. 163 c.
W. C. Mobley, Gen. Supt.........Allegheny, Pa.
C. P. Ford, Pur. Agt......... ..Allegheny, Pa.
Chas. Kennedy, Asst. Supt. & M. M. do.
Pontiac, Oxford & Pt. Austin R. R. 100 m. in progress.
Geo. W. Debevoise, Gen. Supt...Oxford, Mich.
Port Huron & No.-Western Ry. 3 g. 218 m. 14 lo. 288 c.
H. McMorran, G. Man. & P. A. Port Huron, Mich.
J. R. Wadsworth, Supt.. ...Port Huron, Mich.
Chas. Deifenbach, M. M......Port Huron, Mich.
Benj. Hillier, M. C. B.........Port Huron, Mich.
Port Jervis & Monticello R. R. 6 g. 24 m. 3 lo. 13 c.
M. V. Heller, Gen. Man......Port Jervis, N. Y.
Port Royal & Augusta Ry. 5 g. 180 m. 16 lo. 310c.
J. N. Bass, Supt.....................Augusta, Ga.
John McCann, M. M. ....Augusta, Ga.
J. H. Milton, M. C. B..............Augusta, Ga.
Portland & Ogdensburg. 4-8½ g. 110 m. 11 lo. 311 c.
J. Hamilton, Gen. Supt. & P. A..Portland, Me.
M. M.......................Portland, Me.
W. G. Brewer, M. C. B... .....Portland, Me.
Portland & Rochester R. R. 4-8½ g. 52 m. 7 lo. 230 c.
J. W. Peters, Supt. & Pur. Agt...Portland, Me.
E. H. C. Tompson, For. of Mach..Portland, Me.
David Dow, For. of Car Repairs.Portland, Me.
Potomac, Fred.'g & Pied. R. R. 3 g. 38 m. 2 lo. 38 c.
Will M. Grafton, Supt..... ..Fredericksburg, Va.
W. J. Sweigard, M. M.....Fredericksburg, Va.
Pough., Hart. & Bos. R. R. 4-8½ g. 45 m. 4 lo. 65 c.
J. A. Perkins, Supt........Poughkeepsie, N. Y.
John L. Donaldson, M. M. Poughkeepsie, N. Y.
Pratt Coal & Coke Company's R. R. 5 g. 9 m. 5 lo. 100 c.
W. L. Gude, Gen. Man.... .. Pratt Mines, Ala.
Prescott & Thirty-Fifth Parallel R. R.
4-8½ g. 77 miles in progress.
Samuel A. Henszey, Gen. Man.. Prescott, Ariz.
Prince Edward Island Ry. 3-6 g. 199 m. 18 lo. 280 c.
Jas. Coleman, Supt. & Pur. Agt.;
Jos. Unsworth, M. Supt. & Storekeeper; and
D. M. Fraser, M. C. B.. .Charlottetown, P. E. I.
Profile & Franconia Notch R. R. 3 g. 15 m. 3 lo. 18 c.
Emmons Raymond, Pur. Agt.. Boston, Mass.
C. H. Greenleaf, Supt......Profile House, N. H.
Prospect Park & Coney Island R. R.
4-8½ g. 15 m. 8 lo. 123 cars.
R. Schermerhorn, Supt........Brooklyn, N. Y.
Martin Painter, M. M...........Brooklyn, N. Y.
Prov., Warren & Bristol R. R. 4-8½ g. 19 m. 5 lo. 57 c.
Waterman Stone, Supt.. .. ..Providence, R. I.
Rufus Smith, M. M. & C. B........Bristol, R. I.
Prov. & Springfield R. R. 4-8½ g. 23 m. 4 lo. 92 c.
Wm. Tinkham, Gen. Man.....Providence, R. I.
G. T. Richardson, M. M........Providence, R. I.
Prov. & Worcester 4-8½ g. 66 m. 34 lo. 1,155 c.
W. E. Chamberlain, Supt .....Providence, R. I.
A. Griggs, Supt. L. & C. D....Providence, R. I.
Pullman's Palace Car Co. 564 passenger cars.
A. B. Pullman, 2d V.-Pr. & G. M.. Chicago, Ill.
Geo. F. Brown, Gen. Supt...... ...Chicago, Ill.
Wm. A. Angell, Pur. Agt.... ......Chicago, Ill.
S. W. Bretzfield, Asst. Pur. Agt. New York, N. Y.
A. Rapp, Man. (Chicago Works) ..Chicago, Ill.
H. L. Spaulding, Man. (Det Shops). Detroit, Mich.
E. A. Benson, Supt. Shops... ....St. Louis, Mo.

Q

Quebec Central Ry. 4-8½ g. 147 m. 10 lo. 267 cars.
A. Steele, Supt................ Sherbrooke, Que.
R. D. Morkill, Pur. Agt.......Sherbrooke, P. Q.
Jas. Seiveright, M. M ..... Sherbrooke, P. Q.
Quebec, Montreal, Ottawa & Occidental Ry.
4-8½ g. 354 m. 36 lo. 993 cars.
L. A. Senecal, Gen. Supt....... Quebec, Que.
Quebec & Lake St. John Ry. 4-8½ g. 36 m. 3 lo. 55 c.
J. G. Scott, Manager..............Quebec, Can.
Frank Fournier, Supt... ...St. Raymond, P. Q.
John T. Eames, M. M.. ....St. Raymond, P. Q.
Queen Anne's & Kent and Townsend Branch R. R.
(See Penna.; (4) Div.)

R

Raleigh & Augusta Air-Line: Carolina Central.
Raleigh & Gaston R. Rs. 4-8½ g. 436 m. 48 lo. 994 c.
John C. Winder, Gen. Man. & P. A. Raleigh, N. C.
Raleigh Rds. 4-8½ g. 194 m. 22 lo. 563 cars.
B. R. Harding, Supt. of Mach. Raleigh, N. C.
Carolina Cen. R.R. 4-8½ g. 242 m. 26 lo. 431 c.
L. C. Jones, Gen. Supt.....Wilmington, N. C.
James Maglenn, M. of Mach. Laurinburg, N. C.
S. R. Ethridge, M. C. B ...Laurinburg, N. C.
Rensselaer & Saratoga R.R. (See Del. & Hud. Can. Co.)
Rhinebeck & Connecticut. (See Hart. & Ct. Wn.)
Richmond, Fredericksburg & Potomac R. R.
4-8½ g. 83 m. 15 lo. 146 cars.
E. T. D. Myers, Gen. Supt..... Richmond, Va.
T. L. Courtney, Asst. Supt......Richmond, Va.
H. Kuhn, M. M...................Richmond, Va.
W. H. Trainham, M. C. B.......Richmond, Va.
Richmond & Alleghany R.R. 4-9 g. 261 m. 21 lo. 837c.
Decatur Axtell, V. P. & Gen. Man. Richmond, Va.
M. Sweeney, Pur. Agt.. .... ..Richmond, Va.
Geo. D. Harris, M. M. & C. B...Richmond, Va.
Richmond & Danville R. R. Co.'s Roads.
1,736 miles 218 loco. 3,833 cars.
A. L. Rives, Gen. Man ....Richmond, Va.
Peyton Randolph, As. G. Man..Richmond, Va.
J. P. Minetree, Pur. Agt....... Richmond, Va.
R. D. Wade, Supt. Mo. Po... ...Richmond, Va.
(1) Rich. & Dan. R. R. 5 g. 847 m. 131 lo. 2,687 cars.
Rich. & Dan. Div.: 5 g. 320 m. 80 lo. 1,797 c
Wm. H. Green, Supt...... ....Richmond, Va.
T. W. Gentry, M. M.... .....Richmond, Va.
J. B. Vaughan, For. Car Sh.. Richmond, Va.
North Carolina Div. 5 g. 223 m. 22 lo. 268 cars.
A. B. Andrews, Supt.... ....Raleigh, N. C.
W. H. Turrentine, M. M. Comp'y's Shops, N. C.
J. C. Holt, For. Car Sh. Comp'y's Shop, N. C.
Atlanta & Char. Air Line. 5 g. 286m. 31 lo. 415 c.
Narrow-Gauge Branches. 3 g. 80 m. 5 lo. 41 c.
I. Y. Sage, Supt..... ....Atlanta, Ga.
W. A. Walden, M. M... .. ..Atlanta, Ga.
Z. T. Smith, For. Car Sh.... ... Atlanta, Ga.
(2) Charlotte, Col. & Aug. R. R. 5 g. 239 m. 22 lo. 287 c.
G. R. Talcott, Supt............Columbia, S. C.
J. H. Green, M. M. (2 roads)...Columbia, S. C.
(3) Columbia & Greenville R. R. 5 g. 297 m. 22 l. 224 c.
G. S. Talcott, Supt............Columbia, S. C.
J. O. Meredith, For. E. & C. Rep.. do.
(4) Virginia Midland Ry. 4-8½ g. 353 m. 41 lo. 631 c.
W. M. S. Dunn, Eng. & Supt. Alexandria, Va.
J. E. Waddey, M. of M......Alexandria, Va.
J. T. Nalls, M. C. B. ....Alexandria, Va.
Richmond & Petersburg R.R. 4-8½ g. 25 m. 8 lo. 132 c.
J. R. Kenly, Supt..... ....Richmond, Va.
John O'Brien, M. M.............Richmond, Va.
Rio Grande R. R. 3-6 g. 22 m. 3 lo. 40 cars.
M. J. Gomila, Rec. & Gen. Man. Brownsville, Tex.
G. W. Rendall, M. M......... Brownsville, Tex.
M. Markwood, M. C. B... ....Brownsville, Tex.
Rio Grande & Pecos Ry. 4-8½ g. 27 m. In progress.
W. W. Hungerford, Man..........Laredo, Tex.
Rochester & Lake Ontario Ry. 4-8½ g. 6 m. 2 lo. 10 c.
N. B. Ellison, Man..............Rochester, N. Y.
Rochester & Pittsb'g. R.R. 4-8½ g. 134 m. 21 lo. 1,251 c.
Geo. E. Merchant, Gen. Man...Rochester N. Y.
J. P. Hovey, M. M...............Rochester, N. Y.
J. R. Sherburne, For. Sh...... ..Buffalo, N. Y.
Rock Island & Mercer County R. R., and
Rock I'd & Peoria Ry. 4-8½ g. 113 m. 13 lo. 357 c.
R. R. Cable, V.-P. & Gen. Supt..Rock Island, Ill.
R. I. & P. Ry.: H. B. Sudlow, Supt. & P. A. do.
Joseph Elder, M. M................Peoria, Ill.
R. I. & M. C. Rd.: B. T. Cable, Supt. R'k Island, Ill.
J. H. Parks, M. M...............Rock Island, Ill.
Rogersville & Jefferson R. R. 5 g. 16 m. 1 lo. 6 cars.
C. M. Leuty, Supt........ Rogersville, Tenn.
Rome (Ga.) R. R. 5 g. 20 m. 2 lo. 17 cars.
Eben Hillyer, Supt.............. ..... Rome, Ga.
O. W. Harbin, M. M. & C. B......... Rome, Ga.
Rome, Watertown & Ogdensburg R. R.
4-8½ g. 417 m. 54 lo. 1,400 cars.
H. M. Britton, Gen. Man. & P. A. Oswego, N. Y.
Geo. H. Haselton, M. M. & C. B..Oswego, N. Y.
E'n Div.: J. D. Remington, Supt. Watertown, N. Y.
W'n Div.: W. H. Chauncey, Supt..Oswego, N. Y.
Roodhouse & Scottsville Ry. In progress.
Geo. P. Merrill, Gen. Man...........Chicago, Ill.
Ruby Hill R. R. (See Eureka & Pal.)
Rumford Falls & Buckfield R.R. 4-8½ g. 29 m. 2 l. 62 c.
L. L. Lincoln, Supt............... Canton, Me.
O. Spaulding, Pur. Agt...........Buckfield, Me.
E. R. Oldham, M. M...............Buckfield, Me.

S

Sabine & East Texas Ry. (See Cen. Pac.)
Sacramento & Placerville R. R. (See Cen. Pac.)
Saginaw Bay & Northw'n R.R. 4-8½ g. 31 m. 6 lo. 136 c.
J. Jackson, Gen. Man.... ...Pinconning, Mich.
F. T. Lillote, Act. Pur. Agt...Pinconning, Mich.
Edward Keeler, M. M........Pinconning, Mich.
Saginaw, Tuscola & Huron R. R.
3 g. 37 m. 3 lo. 83 cars.
C. S. McMillan, Gen. Supt...E. Saginaw, Mich.
Saginaw Valley & St. Louis R. R. 4-8½ g. 39 m. 4 l. 64 c
N. W. Merrill, Supt ....Saginaw, Mich.
Allan Bourn, Pur. Agt.. ... .Detroit, Mich.
Geo. C. Watrous, M. M.... ....Iona, Mich.
Salisbury R. R. 4-8½ g. 11 m. 1 lo. 1 car.
R. J. Batzer, Supt..............Pittsburgh, Pa.
Salt Lake & Western R. R. (See Un. Pac.; (6) Div.)
San Francisco & No. Pac. 4-8½ g. 139 m. 11 lo. 245 c.
Arthur Hughes, Gen. Man..San Francisco, Cal.
H. C. Whiting, Supt.... ....Petaluma, Cal.
Ed. Reynolds, Gen. M. M.........Donahue, Cal.
John Martin, M. C. B. .... Donahue, Cal.
Sanborn, Cooperstown & Turtle M. R. R. In progress.
C. A. Roberts, Gen. Man. .. Sanborn, Dak.
Sandy River R. R. 2 g. 18 m. 2 lo. 23 cars.
D. L. Dennison, Supt...............Phillips, Me.
M. Saunders, M. M. & C. B........Phillips, Me.
Sandusky, Mansfield & Newark R. R. (See B. & O.)
Sanford & Indian River R. R. (See So. Flor.)
San Luis Obispo & Santa Maria R. R.
3 g. 20 m. 2 lo. 30 cars.
Charles Goodall, Man......San Francisco, Cal.
San Pete Valley R. R. 3 g. 33 m. 2 lo. 57 cars.
F. C. Hand, Supt...................Wales, U. T.
J. E. Bamberger, Pur. Agt.... Salt Lake, U. T.
B. Bates, M. M......................Wales, U. T.
Santa Cruz R. R. (See So. Pac.; Nor'n Div.)
Saratoga, Mt. McGregor & Lake George R. R.
3 g. 11 m. 3 lo. 12 cars.
John McGee, Supt. ....Saratoga Springs, N. Y.
Savannah, Florida & W'n Ry. 5 g. 425 m. 50 lo. 736 c.
H. S. Haines, Gen. Man.........Savannah, Ga.
R. G. Fleming, Supt ....Savannah, Ga.
F. S. Pendergast, Ch. Eng..... ..Savannah, Ga.
A. A. Aveilhé, Pur. Agt..........Savannah, Ga.
G. M. D. Riley, M. of Mach.....Savannah, Ga.
Jos. W. Rowell, For. Car Dept. Savannah, Ga.
Sav., Griffin & No. Ala. R. R. Op. by Central (Ga.).
Savannah, Skiddaway & Seaboard R. R.
5 g. 12 m. 3 lo. 12 cars.
Edward J. Thomas, Supt ....Savannah, Ga.
R. F. Brown, M. M... ... .Savannah, Ga.
G. W. Mattan, M. C. B...........Savannah, Ga.
Schuylkill & Lehigh R. R. (See Phil. & Read.)
Schoharie Valley R. R. (See Middleburg & Sch.)
Scioto Valley R. R. 4-8¾ g. 132 m. 17 lo. 564 cars.
Geo. Skinner, Supt. ....Columbus, O.
R. Bromley, M. M. & P. A......Portsmouth, O.
Seaboard & Roanoke R. R. 4-8½ g. 80 m. 21 lo. 384 c.
E. G. Ghio, Mast. of Trans....Portsmouth, Va.
J. A. Walton, Pur. Agt........Portsmouth, Va.
M. M. Pendleton, S. M. P. & M. Portsmouth, Va.
Sedalia, Warsaw & Southern Ry. (See Mo. Pac.)
Sharpsville R. R. 4-8½ g. 23 m. 3 lo. 13 cars.
Walter Pierce, Gen. Man......Sharpsville, Pa.
Shenandoah Valley R. R. 4-9 g. 249 m. 32 lo. 849 c.
Norfolk & Western R. R. 5 g. 486 m. 82 lo. 1,779 c.
J. H. Sands, Supt .... .Roanoke, Va.
W. C. De Armond, Pur. Agt. ..Philadelphia, Pa.
Chas. Blackwell, Supt. of M. P...Roanoke, Va.
Sh. Val. Rd.: D. W. Flickwir, Supt. Roanoke, Va.
W. Welch, M. M......... ......Roanoke, Va.
N. & W.; W. Div.: Frank Huger, Supt.; and
F. Sterk, M. M................Lynchburg, Va.
N. & W.; E. Div.: N. M. Osborne, Supt.; and
J. T. Robinett, M. M. & C. B...Petersburg, Va.
Shenango & Allegheny R.R. 4-9½ g. 57 m. 8 lo. 248 c.
J. T. Blair, G. Man. & Pur. Agt. Greenville, Pa.
Edw. Richardson, M. M. & C. B. Greenville, Pa.
Shepaug R. R. 4-8½ g. 38 m. 3 lo. 28 cars.
Edwin McNeill, Supt.............Litchfield, Ct.
C. M. Allen, M. M............... Litchfield, Ct.
Ship Is., Ripley & Ky. R. R. 3 g. 25 m. 2 lo. 23 cars.
C. L. Harris, Supt. & Pur. Agt....Ripley, Miss.
W. H. Phelps, M. M..................Ripley, Miss.
Silver City, Deming & Pacific R. R. 3 g. 47 m. 3 l. 141 c.
John W. Smith, Gen. Supt....Silver City, N. M.
Silver Lake Ry. 4-8½ g. 6 m. 1 lo. 4 cars.
E. G. Matthews, Supt............. .Perry, N. Y.
Sinaloa & Durango R. R. 4-8½ g. 38 m. 2 lo. 40 cars.
H. M. Fickinger, Supt....Altata, Sinaloa, Mex.
Wm. P. Dutton, M. M........... Culiacan, Mex.
Skaneateles R. R. 4-8½ g. 5 m. 2 lo. 5 cars.
J. McNamara, Supt........Skaneateles, N. Y.
Sioux City & Pacific R. R. 4-8½ g. 427 m. 28 lo. 785 c.
P. E. Hall, Gen. Man. & P. A. Cedar Rapids, Ia.
C. M. Lawler, Gen. Supt....Missouri Valley, Ia.
J. S. Wattles, Supt.... ... Missouri Valley, Ia.
C. F. McCoy, Asst. Supt.............Blair, Neb.
S. A. Teal, M. M...... ....Missouri Valley, Ia.
W. H. Ramseyer, M. C. B. ..Missouri Valley, Ia.
Smyrna & Delaware Bay R. R. (See Kent County.)
Sodus Bay & Southern Ry. 4-8½ g. 34 m. 4 lo. 40 c.
S. B. Stuart, Supt. & Pur. Agt. Sodus Point, N. Y.
J. C. Thomas, M. M.........Sodus Point, N. Y.
C. H. Hill, M. C. B ....Sodus Point, N. Y.
Somerset R. R. 4-8½ g. 25 m. 3 lo. 24 cars.
W. M. Ayer, Supt. & Pur. Agt. W. Waterville, Me.
C. Crowell, M. C. B.. ....No. Anson, Me.
Somerset & Cambria R. R. (See B. & O.)
Sonora Ry. (See A., T. & S. Fe.)
South & North Alabama R. R. (See Louis. & Nash.)
South Carolina Ry. 5 g. 246 m. 42 lo. 742 cars.
John B. Peck, Gen. Man. ......Charleston, S. C.
S. B. Pickens, Pur. Agt........Charleston, S. C.
P. J. Cochrane, Mast. of Mach. Charleston, S. C.
Geo. H. Gramling, M. C. B....Charleston, S. C.
South-Eastern Ry. 4-8½ g. 260 m. 26 lo. 826 cars.
T. A. McKinnon, Gen. Man.....Montreal, Can.
A. G. Eastman, M. M.... ..W. Farnham, P. Q.
South Florida R. R. 3 gauge 40 m. 5 lo. 53 cars.
B. R. Swoope, Supt. & P. A.......Sanford, Fla.
C. C. Haskell, Pur. Agt....... ...Sanford, Fla.
J. A. Campbell, M. M..............Sanford, Fla.
A. D. Stentiford, M. C. B..........Sanford, Fla.
South Mountain R. R. 4-8½ g. 18 m. 4 lo. 22 c.
W. H. Woodward, Supt. Pine G've Furnace, Pa.
South Pacific Coast R. R. 3 g. 81 m. 14 lo. 500 cars
Geo. Revett, Gen. Supt... San Francisco, Cal.
G. H. Waggoner, Pur. Agt..San Francisco, Cal.
E. L. Reese, M. M. & C. B. ....Newark, Cal.
South-Western R. R. (Ga.) (See Central of Ga.)
South-Western Ry. (Ky.) 4-8½ g. 4 m. 1 lo. 38 cars.
J. M. Wilson, Supt............Harrodsburg, Ky.
J. Tomlinson, Pur. Agt .....Harrodsburg, Ky.
Southern Central R. R. 4-8½ g. 156 m. 21 lo. 467 c.
James G. Knapp, Supt. & Pur. Agt. Auburn, N. Y.
Chas. G. Brown, M. M... ...Auburn, N. Y.
H. Mooney, M. C. B..............Auburn, N. Y.
Southern Kansas Ry. (See At., Top. & Santa Fe.)
Southern Maryland R. R. 4-8½ g. 20 m. 1 lo. 20 c.
Robert Knight, Supt. ....Brandywine, Md.
C. R. Joyce, M. M......... .. Brandywine, Md.
Southern Pacific R. R. 4-8½ g. 198 m. 30 lo. 728 c.
Northern Div. (For other Divs. see Cen. Pac.)
A. C. Bassett, Supt.......San Francisco, Cal.
J. R. Watson, Pur. Agt.....Sacramento, Cal.
J. T. Wilson, M. M..... ..San Francisco, Cal.
F. N. Bellisle, M. C. B. ...San Francisco, Cal.
Southern Pacific R. R. of Arizona. (See Cen. Pac.)
Southern Pacific R. R. of New Mexico. (See Cen. Pac.)
Spartanburg, Union & Columbia R. R.
(See Rich. & Dan.; (3) Div.)
Spring Brook R. R. 4-3 g. 8 m. 1 lo. 18 cars.
Charles Pugh, Pres.. ....Pittston, Pa.
Spring Hill & Parrsboro Ry. (See Cumberland.)
Springfield, Effingham & So.-E'n Ry. (See Ind. & Ill.)
Springville & Sardinia Ry. 4-8½ g. 12 m. 1 lo. 8 c.
Bertrand Chaffee, Pres....... Springville, N. Y.
St. Croix & Penobscot R. R. 4-8½ g. 22 m. 4 lo. 195 c.
S. W. Haycock, Supt. & Pur. Agt. .Calais, Me.
G. H. Corsen, M. M.... .. ..Milltown, Me.
H. C. Tincker, M. C. B............Milltown, Me.
St. John & Maine Ry. (See New Brunswick.)
St. John's Ry. 4-8½ g. 14½ m. 2 lo. 24 cars.
R. McLaughlin, Pr. & Supt. .Jacksonville, Fla.
Geo. Ferro, M. of Mach.. ....Tocoi, Fla.
St. John's & Lake Eustis Ry. 3 g. 26 m.
W. J. Jarvis, Supt.......... .. Ft. Mason, Fla.
St. Johnsb'ry & Lake Champ 4-8½ g. 120 m 10 lo. 372 c.
A. B. Jewett, Supt. & P. A..St. Johnsbury, Vt.
Geo. E. Howe, M. M. & C. B. St. Johnsbury, Vt.
St. Joseph Valley R. R. 3 g. 15 m. 1 lo. 11 cars.
J. H. Matthews, Gen. Supt. Berrien Springs, Mich.
St. Joseph & Des Loge Ry. 3 g. 13 m. 3 lo. 64 cars.
T. T. Onderdonk, Supt.. Bonne Terre, Mo.
St. Joseph & Western R. R. (See Union Pac.; (1) Div.)
St. Joseph & Des Moines R. R. (See K. C., St. J. & C. B.)
St. Lawrence & Ottawa Ry. (See Can. Pac.)
St. Louis, Alton & Terre Haute R. R.
Main Line. (See C., C., C. & I.; Ind. & St. L. Div.)
St. Louis & Cairo Div.: 4-8½ g. 137 m. 17 lo. 800 c.
G. W. Parker, Gen. Man ....St. Louis, Mo.
J. L. Hinckley, Supt... ... .Belleville, Ill.
A. M. De Clerq, M. M..........St. Louis, Mo.
St. Louis Bridge Co. and Tunnel R. R.
4-8½ g. 31 m. 18 lo. 11 cars.
Wm. Taussig, Gen. Man...........St. Louis, Mo.
A. W. Dickinson, Supt.... ....St. Louis, Mo.
J. E. Williams, Jr., Pur. Agt....St. Louis, Mo.
H. M. Smith, M. M..................St. Louis, Mo.
St. Louis Coal R. R. 4-8½ g. 93 m. 10 lo. 217 cars.
Jas. Prentice, Supt..............Carbondale, Ill.
Jas. C. Bryden, Pur. Agt... ....St. Louis, Mo.
St. Louis, Des Moines & Northern Ry. 4-8½ g. 43 m.
C. F. Merk, Supt...............Des Moines, Ia.
St. L., Ft. Scott & Wichita R.R. 4-8½ g. 130 m 6 l. 337 c.
F. Tiernan, V. P. & Gen. Man..Fort Scott, Kan.
J. W. Miller, Gen. Supt........Fort Scott, Kan.
A. Popkess, Pur. Agt...... ...Fort Scott, Kan.
Henry Berger, M. M ....Ft. Scott, Kan.
A. A. Tiddell, M. C. B......... ..Ft. Scott, Kan.
St. L., Hannibal & Keokuk. 4-8½ g. 85 m. 5 lo. 70 c.
W. W. Walker, Gen. Supt....... Hannibal, Mo.
Geo. Douglass, Pur. Agt .... Hannibal, Mo.
St. Louis, Iron Mt. & So'n Ry. (See Mo. Pac.; (4) Div.)
St. L., Keokuk & No.-W'n. Ry. (See C., B. & Q.)
St. L., Salem & Little Rock. 4-9 g. 72 m. 5 lo. 111 c.
H. A. Crawford, V. Pr. & P. A...St. Louis, Mo.
E. B. Sankey, Supt...................Salem, Mo.
Thomas Everson, M. M. ....Steelville, Mo.
J. W. Houston, M. C. B...........Steelville, Mo.
St. L., Van. & T. Haute R.R. (See Penna. Co.; (10) Div.)
St. Louis & Cairo R. R. 3 g. 152 m. 22 lo. 896 cars.
Chas. Hamilton, Gen. Supt..... .St. Louis, Mo.
R. M. Pringle, M. M..............St. Louis, Mo.
St. L. & San Fran. Ry. 4-8½ g. 854 m. 103 lo. 3,258 c.
C. W. Rogers, V. P. & Gen. Man..St. Louis, Mo.
D. H. Nichols, Mast. Tran..No. Springfield, Mo.
A. G. Thompson, Pur. Agt.......St. Louis, Mo.
M. Kearney, M. M. & C. B..No. Springfield, Mo.
Mo. & Ark. Div.: W. A. Thoms, Supt. do.
Kan. Div.: J. R. Wentworth, Supt. Neodesha, Kan.
St. Martin's & Upham Ry. 4-8½ g. 30 m. 2 lo. 8 cars.
A. E. Killam, Manager ....St. Martin's, N. B.
St. Paul, Minneapolis & Manitoba Ry.
4-8½ g. 1,326 m. 201 lo. 5,068 cars.
A. Manvel, Gen. Man............St. Paul, Minn.
E. B. Wakeman, Asst. Gen. Supt. St. Paul, Minn.
J. C. Morrison, Pur. Agt.........St. Paul, Minn.
H. Middleton, M. M. & C. B ... St. Paul, Minn.
Breck. Div.: W. S. Kemp, Supt...St. Paul, Minn.

F. F. Div.: J. B. Rice, *Supt*........St. Paul, Minn.
No'n Div.: A. Guthrie, *Supt*.....Crookston, Minn.
St. Paul & Duluth R. R. 4-8½ g. 196 m. 34 lo. 980 c.
H. P. Breed, *Gen. Supt*..... ....St. Paul, Minn.
J. G. Callahan, *Pur. Agt*........St. Paul, Minn.
W. McFarland, *M. M*............St. Paul, Minn.
John Hill, *M. C. B*. ....St. Paul, Minn.
State Line & Sullivan R. R. 4-8½ g. 25 m. 3 lo. 263 c.
I. O. Blight, *Supt*................Towanda, Pa.
Staten Island R. R. 4-8¾ g. 13 m. 4 lo. 18 c.
J. W. Wilbur, *Supt*............New York, N. Y.
Stony Clove & Catskill Mountain R. R.
3 g. 14 m. 2 lo. 21 cars.
Geo. Coykendall, *Gen. Supt*....Rondout, N. Y.
Stony Creek R. R. 4-8½ g. 11 m.
Geo. B. Boggs, *Supt* .... Norristown, Pa.
Sterling Mountain Ry. 6 g. 8 m. 2 lo. 145 cars.
J. C. Missimer, *Supt*..........Sloatsburg, N. Y.
Suffolk Lumber R. R. 3 g. 15 m. 3 lo. 41 cars.
W. M. Whaley, *Supt*.. ....Suffolk, Va.
Summit Branch R. R. 4-9 g. 20 m. 7 lo. 10 cars.
Thomas Gucker, *Supt* ....Williamsport, Pa.
Susquehanna & Delaware River R. R. In progress.
D. Y. Kilgore, *Pres*...........Philadelpnia, Pa.
Sussex R. R. (*See Del., Lack. & West.*)
Syracuse, Binghamton & N. Y. R. R. (*See D. L. & W.*)
Syr., Ontario & N. Y. R. R. (*See N.Y., W.Sh. & Buf.*)
Syracuse, Geneva & Corning; Corning, Cowanasque & Antrim R. Rs. 4-8½ g. 142 m. 28 lo. 1,044 c.
A. H. Gorton, *Supt*...... ......Corning, N. Y.
W. E. Gorton, *Asst. Supt*.........Corning, N. Y.
Andrew Beers, *Pur. Agt*........Corning, N. Y.
O. C. Patchell, *M. M*.............Corning, N. Y.
C. J. Butler, *M. C. B*.............Corning, N. Y.

T

Tawas & Bay County R. R. 3-2 g. 28 m. 2 lo. 100 c.
Henry Clark, *Gen. Supt*......Tawas City, Mich.
Tennessee Coal R. R. 5 g. 28 m. 8 lo. 204 cars.
A. M. Shook, *Gen. Man*......Tracy City, Tenn.
W. A. Knight, *M. M*......... Tracy City, Tenn.
Tennessee & Sequatchee Valley R. R.
3 g. 42 m. 1 lo. 24 cars.
Isaac Britton, *Gen. Supt*. ....Jewett, Tenn.
P. V. Mooney, *Pur. Agt*......Spring City, Tenn.
Terre Haute & Indianapolis (*See Penn. Co.;*(10) *Div.*)
Terre Haute & Logansport (*See Penn. Co.;* (10) *Div.*)
Terre Haute & So.-Eastern Ry. 4-9 g. 44 m. 2 lo. 145 c.
Geo. Atherton, *Supt*......... Terre Haute, Ind.
Texas Central Ry. (*See Hous. & Tex. Cen.*)
Texas-Mexican Ry. (*See Mex. Nat.*)
Texas Trunk R. R. 4-8½ g. 36 m. 2 lo. 8 cars.
W. W. Simonds, *Gen. Supt*...... ..Dallas, Tex.
Texas Western Ry. 3 g. 52 m. 2 lo. 44 cars.
E. L. Heriot, *Gen. Man*. ......Houston, Tex.
J. W. Goodwin, *Supt*..... ......Houston, Tex.
T. F. Glispin, *M. M*..............Houston, Tex.
Texas & N.O.R. R.(*See Cen. Pac.; G. H. & S. A. Div.*)
Texas & Pacific. (*See Mo. Pac. Ry.;* (6) *Div.*)
Texas & St. Louis Ry. 3 g. 672 m. 66 lo. 1,382 cars.
J. W. Paramore, *Gen. Man*..... St. Louis, Mo.
F. W. Paramore, *Pur. Agt* . ... St. Louis, Mo.
G. W. Prescott, *S. M. P. & M* ...St. Louis, Mo.
A. E. Buchanan, *Supt. Trans*......Tyler, Tex.
Tex. Div.: A. L. Horner, *Supt* ....Tyler, Tex.
Tionesta Valley R. R. 3 g. 7 m.
George Dickinson, *Gen. Supt* .... Sheffield, Pa.
Tioga and Elmira State Line R. Rs.
4-8½ and 6 g. 67 m. 18 lo. 960 cars.
L. H. Shattuck, *Supt*.............Blossburg, Pa.
J. A. Hardenburg, *Pur. Agt*.. New York, N. Y.
Pere Bonny, *M. M*...............Blossburg, Pa.
D. H. Stratton, *M. C. B*...... .Blossburg, Pa.
Toledo, Ann Ar. & Gr, Tr. Ry. 4-8½ g. 63 m. 9 lo. 186 c.
J. M. Ashley, *Gen. Man*......Ann Arbor, Mich.
H. W. Ashley, *Supt. & Pur. Agt*. do
C. C. Dodge, *M. M*.............Ann Arbor, Mich.
Toledo, Cin. & St. Louis R. R. 3 g. 798 m. 63 lo. 2,509 c.
Gen. Man.... ....Toledo, O
F. W. Stewart, *P. Agt*...............Toledo, O.
L. W. James, *Supt. Mach*.......... Toledo, O.
C. H. Mead, *Gen. M. C. B* .... .Delphos, O.
Toledo Div.: W. H. Vandergrift, *Supt*.: do
J. G. Clifford, *M. M*...... ....Delphos, O.
Del. & Cin. Divs.: C. A. Bell, *Supt*........Cin.,O.
T. J. Hamer, *M. M* ....Cincinnati, O.
So. Ea'n Div.: A. W. Salter....... ...Dayton, O.
L. Parisoe, *M. M*...................Dayton, O.
St. Louis Div.: M. B. Mann ....Charleston, Ill.
Toledo & Indianapolis R. R. 4-8½ g. 43 m. 4 lo. 118 c.
J. B. Clark, *Gen. Supt*..... .... Toledo, O.
T. Cook, *Supt. of M. P*..............Toledo, O.
Toledo & South Haven R. R. (*See Paw Paw.*)
Tonawanda Val. & Cuba R. R. (*See Brad., B. & K.*)
Toronto, Grey & Bruce Ry. 4-8½ g. 191 m. 28 l. 446 c.
Edmund Wragge, *Gen. Man*... .Toronto, Can.
W. Watson, *Pur. Agt* .... Toronto, Can.
David Preston, *M. M*........... Toronto, Can.
Toronto & Nipissing Ry. (*See Mid. Ry. of Can.*)
Troy & Boston R. R. 4-8½ g. 48 m. 20 lo. 484 cars.
D. Robinson, *Pres. & Pur. Agt*......Troy, N. Y.
Joseph Crandell, *Supt*............ Troy, N. Y.
Z. B. Davis, *M. M* ....Troy, N. Y.
R. V. Coon, *M. C. B*.................Troy, N. Y.
Troy & Greenfield R. R. 4-8½ g. 44 m.
A. W. Locke, *Man*.........North Adams, Mass.
Tuckerton R. R. 4-8½ g. 31 m. 2 lo. 29 cars.
J. J. Pharo, *Supt.&Pur. Agt*.Tuckerton, N. J.

U

Ulster & Delaware R. R. 4-8½ g. 74 m. 10 lo. 214 cars.
Jas. H. Jones, *Supt*.............Rondout, N. Y.
Joseph Rush, *M. M* ....Rondout, N. Y.
John H. Decker, *M. C. B*........Rondout, N. Y.
Union Pacific Ry. (7 Gen. Divs.)
3 & 4-8½ g. 4,551 m. 510 lo. 10,550 cars.
S. H. H. Clark, *Gen. Man*.........Omaha, Neb.
Thos. L. Kimball, *Asst. Gen Man*.Omaha, Neb.
M. H. Goble, *Pur. Agt*.............Omaha, Neb.
I. H. Congdon, *S. M. P. & C. D*...Omaha, Neb
John Wilson, *Asst. do*..............Omaha, Neb.
(1) Neb. Div.: P. J. Nichols, *Gen. Supt*..Omaha, Neb.
E. Div.: C. B. Havens, *Supt*.. .....Omaha, N. B.
R. McConnell, *M. M*........... Omaha, Neb.
A. M. Collett, *M. C. B*...........Omaha, Neb.
St. J. & W. Div.: L.D. Tuthill, *Supt*.St. Joseph, Mo.
E. Sleppy, *M. M*..............G. Island, Neb.
Moun. Div.: W. A. Deuel, *Supt*..Cheyenne, W.T
J. H. McConnell, *M. M*. ....N. Platte, Neb.
R. McDougall, *M. M*..........Cheyenne, W. T.
(2) Wy. Div.: E. Dickenson, *Gen. Supt*..Laramie, W. T.
T. E. Lewis, *M. M* ....Laramie, W. T.
T. A. Davis, *M. M*.............Rawlins, W. T.
Wes. Div.: C. E. Wurtelle, *Supt*. Evanston, W. T.
Geo. F. Chapman, *M. M*.......Evanston, W. T.
(3) Idaho Div.: W.B. Doddridge, *Gen. Supt*.Ogden, U.
F. Rearden, *M. M*.............. Pocatello, Id.
Ogden Short Line Div.:
R. Blickensderfer, *Supt*.... .. Pocatello, Id.
W. H. Lewis, *M. M*.. ......Montpellier, Id.
Utah & Northern Div.:
W. P. P. St. Clair, *Supt*... ...Eagle Rock, Id.
R. Croft, *M. M*... ....Logan, Utah.
F. Reardon, *M. M*...........Eagle Rock, Id.
(4) Col. Cent. Div.: A. A. Egbert, *Gen. Supt*. Denver, Col.
F. Meirtsheimer, *M. M*..........Denver, Col.
C. C. Div.: P. Touhy, *Supt*..........Denver, Col.
So. Park Div.: G. W. Evans, *A. Supt*..Como, Col.
(5) Kan. Div.: S. T. Smith, *G. Supt*..Kansas City, Mo.
K. Val. Div.: J. O. Brinkerhoff, *Supt*.Kan.C'y, Mo.
Jas. Mackenzie, *M. M* ..... Armstrong, Kan.
Kansas Central Div.:
W. T. Kelley, *Supt*...... ..Leavenworth, Kan.
Smoky Hill Div.:
O. H. Dorance, *Supt*...........Wallace, Kan.
J. B. Dailey, *M. M* ....Ellis, Kan.
(6) Salt Lake & Western Div.:
W. W. Ritter, *Supt*......Salt Lake City, Utah.
(7) Nevada Central Ry. 3 g. 93 m. 4 lo. 78 cars.
F. W. Dunn, *Gen. Supt. & P. A.* Battle Mt., Nev.
Z. T. Sprigg, *M. M*........Battle Mountain, Nev.
United States Rolling Stock Co. 23 lo. 4,834 cars.
A. Hegewisch, *Pres*............New York, N. Y.
W. H. Chaddock, *Pur. Agt*........Chicago, Ill.
Upson County R. R. (*See Central of Ga.*)
Utah Central Ry. 4-8½ g. 280 m. 21 lo. 358 cars.
John Sharp, *Gen. Supt*...Salt Lake City, Utah.
S. H. Hill, *Pur. Agt*.......Salt Lake City, Utah.
W. B. Armstrong, *M. M*..Salt Lake City, Utah.
Peter Reid, *M. C. B*........Salt Lake City, Utah.
Utah & Nevada Ry. 3 g. 37 m. 3 lo. 33 cars.
W. W. Ritter, *Gen. Man*...Salt Lake City, Utah.
Robert Anderson, *M. M*...Salt Lake City, Utah.
Utah & Northern Ry. (*See Union Pac.;* (3) *Div.*)
Utah & Pleasant Valley Ry. (*See Den. & Rio. Gr.*)
Utica, Ithaca & Elmira Ry. 4-8½ g. 120 m. 11 lo. 152 c.
C. R. Fitch, *Supt* ....Elmira, N. Y.
C. J. Howe, *M. M & M. C. B*..Breesport, N. Y.
Utica, & Black Riv. R. R. 4-8½ g. 180 m. 22 lo. 452 c.
J. F. Maynard, *Gen. Supt. & P. A*..Utica, N.Y.
John Bailey, *M. M*...................Utica, N. Y.
David James, *M. C. B*..............Utica, N. Y.

V

Vaca Vall. & Clear Lake R. R. 4-8½ g. 30 m. 2 lo. 19 c.,
G. B. Stevenson, *Gen. Supt*.... ..Vacaville, Cal.
Valley Ry. (Ohio) 4-8¾ g. 85 m. 15 lo. 581 cars.
J. E. Turk, *Supt & P. Agt*........Cleveland, O.
Chas. Blanchard, *M. C. B*..... ..Cleveland, O.
Valley R. R. Va. 4-8½ g. 26 m.
S. Spencer, *Pres*.. ....Baltimore, Md.
Vermont Valley R. R. (*See Conn. River.*)
Vicksburg & Brunswick R. R. (*See Cen. of Ga.*)
Vicksburg & Meridian R.R. (*See Cin., N.O.& Tex.Pac.*)
Vicks. Shreveport & Pac. R. R. (*See C., N. O.& T. P.*)
Victoria Ry. (*See Midland Ry. of Can.*)
Virginia Midland Ry. (*See Rich. & Dan.;* (4) *Div.*)
Virginia & Truckee R. R. 4-8½ g. 54 m. 17 lo. 375 c.
Carson & Colorado R. R. 3 g. 234 m. 6 lo. 134 c.
H. M. Yerington, *Gen. Supt*... .. Carson, Nev.
R. J. Laws, *Supt*. (C. & Col.)..Hawthorne, Nev.
Hume Yerington, *Pur. Agt*........Carson, Nev.
I. N. Fording, *M. M*.. ....Carson, Nev.
B. F. Lyon, *M. C. B*............ Carson, Nev.

W

Wabash, Chester & W'n R. R. (*See St. Louis Coal.*)
Wabash, St. Louis & Pacific Ry. (4 Gen. Divs.)
4-8½ g. 3,241 m. 598 lo. 17,230 cars.
John C. Gault, *2d V. P*...........St. Louis, Mo.
Robert Andrews, *Gen. Supt*.....St. Louis, Mo.
R. B. Lyle, *Pur. Agt*.. ....St. Louis, Mo.
Jacob Johann, *Gen. M. M*......Springfield, Ill.
U. H. Kohler, *Gen. M. C. B*..........Toledo, O.
(1) Eas'n Div.: G. W. Stevens, *Supt*.......Peru, Ind.
J. B. Barnes, *M. M* ....Fort Wayne, Ind.
John McKenna, *M. M*............ Peru, Ind.
Cairo Div.: D. G. Moore, *Asst. Supt*.... Cairo, Ill
W. S. Morris, *M. M*.................Carmi, Ill
Rant'l Div.: B. F. Mathias, *Asst. Supt*. Rantoul, Ill.
J. McCarthy, *M. M*.......... ....Rantoul, Ill.
(2) Middle Div.: H. F. Clark, *Supt*....Springfield, Ill.
B. B. Rose, *M. C. B*...............Decatur, Ill.
F. L. Tomkins, *Asst. Supt*. ....Forest, Ill
F. D. Schermerhorn, *Asst. Supt*.. Quincy, Ill.
(3) Northern Div.: E. N. Armstrong, *Supt*. Peoria, Ill.
C. S. Lape, *M. M*.....................Tilton, Ill.
R. M. Hemphill, *M. C. B*..........Peoria, Ill.
E. B. Hyde, *Asst. Supt*.......... Havana, Ill.
(4) Western Div.: R. S. Miner, *Supt*.....Moberly, Mo.
W. H. Selby, *M. M*................Moberly, Mo.
C. S. Buck, *M. C. B*...............Moberly, Mo.
E. Dresser, *Asst. Supt*...........Stanberry, Mo
J. S. Hazen, *M. C. B*............Stanberry, Mo
D. Moin. Div.: C. F. Meek, *A. Supt*. Des Moines, Ia
Walden's Bridge R. R. 3 g. 23 m. 3 lo. 37 cars.
John G. Scott, *Gen Man*....Jenks P. O., Tenn.
Walkill Ry. (*See N. Y., West. Sh. & Buf.*)
Walla Walla & Columbia Riv. R. R. (*See Ore. Ry.*)
Walton R. R. 5 g. 10 m. 1 lo. 7 cars.
D. H. Walker, *Pres*................Monroe, Ga.
Warren & Farnsworth Valley R. R.
3 g. 11 m. 3 lo. 39 cars.
A. D. Wood, *Supt*...................Warren, Pa.
Warwick Valley R. R. (*See Leh. & Hud. River.*)
Wasatch & Jordan Valley R. R. (*See Den. & Rio. Gr.*)
Washington, Ohio & West. R. R. 4-8½ g. 52 m. 5 lo. 87 c.
S. M. Brophy, *Supt*.... .... Alexandria Va.
Edward Dunn, *M M*............Alexandria, Va.
John Harrison, *M. C. B*........Alexandria, Va.
Waynesburg & Washington Rd. 3 g. 29 m. 3 lo. 26 c.
C. E. Bower, *Supt*..............Waynesburg, Pa.
A. M. Kline, *M. C. B*.... .....Waynesburg, Pa.
Welland Ry. 4-8½ g. 25 m. 4 lo. 147 cars.
William Pay, *Supt*.........St. Catharines, Ont.
Jas. Taylor, *M. M*... ......St. Catharines, Ont.
Wm. H. Pay, *M. C. B*......St. Catharines, Ont.
West End Narrow Gauge Ry. 3 g. 16 m. 3 lo. 13 c.
Rolla Wells, *Supt*............. St. Louis, Mo.
M. M. Hodgman, *M. M*.........Florissant, Mo.
West Feliciana R. R. 4-8½ g. 27 m. 2 lo. 22 cars
J. B. McGehee, *Pr. & Gen. Supt*. Bayou Sara, La.
J. A. Tilton, *M. M. & C. B*.....Bayou Sara, La
W. Va., Central & Pittsb'g Ry. 4-8½ g. 24 m. 4 lo. 114 c.
W. E. Porter, *Gen. Supt*......Piedmont, W. Va
Geo. W. Harrison, *Pur. Agt*...Piedmont, W. Va.
E. W. Lippencott, *M. M. & M. C. B*..Piedmont.
West & East R. R. (*See Ill. Cen.; N. O. Div.*)
West Jersey R. R. (*See Penn. R. R.;* (3) *Div.*)
Western R. R. (of Ala.) 5 g. 138 m. 15 lo. 270 cars.
Atlanta & W. Point Rd. 5 g. 87 m. 14 lo. 240 c.
Cecil Gabbett, *Gen. Man. & Supt*...Mont., Ala.
C. D. Wall, *M. M*............Montgomery, Ala.
F. M. Wade, *M. C. B* ....Montgomery, Ala.
Western Counties' Ry. 4-8½ g. 67 m. 8 lo. 137 cars.
J. Brignell, *Supt* ....Yarmouth, N. S.
Western Maryland R. R. 4-8½ g. 157 m. 25 lo. 439 c
J. M. Hood, *Pr. & Gen. Man*....Baltimore, Md.
R. J. Adair, *Pur. Agt*........... Baltimore, Md.
David Holtz, *Mast. of Mach*..Union Bridge, Md.
J. H. Nussear, *M. C. B*.......Union Bridge, Md.
Western No. Carolina R. R. 5 g. 210 m. 17 lo. 160 c.
V. E. McBee, *Supt*...............Salisbury, N. C.
Jos. P. Minetree, *Pur. Agt*.......Richmond, Va.
G. W. Gates, *M. M*............Salisbury, N. C.
Western & Atlantic R. R. 5 g. 138 m. 58 lo. 952 c.
R. A. Anderson, *Gen. Supt*.........Atlanta, Ga.
A. B. Bostwick, *Asst. Supt*........ Atlanta, Ga.
John H. Flynn, *M. M. & C. B*.....Atlanta, Ga
Wheeling, Pittsburg & Baltimore R. R. (*See B. & O.*)
Wheeling & Lake Erie R. R. 267 m. 31 lo. 1,456 c.
M. D. Woodford, *Gen. Man*....... ..Toledo, O.
O. P. Dunbar, *Gen. M. M*...........Norwalk, O.
John Hillhouse, *Div. M. M*........Norwalk, O.
A. Galloway, *Div. M. M*.........Cambridge, O.
Whitby, Port Perry & Lindsay Ry. (*See Mid. of Can.*)
White Water R. R. (*See Ft. W., Cin. & Lou.*)
Whitefield & Jefferson R. R. (*See Bos., Con. & Mon.*)
Whitneyville & Machiasport R. R. 8 m. 2 lo. 48 c.
C. Sullivan, *G. M. & Pur. Agt*. Whitneyville, Me.
Wicomico & Pocomoke R. R. 4-8½ g. 30 m. 2 lo. 38 c.
L. Showell, *Pres*.................. ....Berlin, Md.
Williamsport & North Branch R. R.
4-8½ g. 6 m. 1 lo. 2 cars.
B. G. Welch, *Man. & P. Agt* ..Hughesville, Pa.
J. V. Chamberlain, *Supt. & M. M*. do.
Williamstown R. R. 4-8½ g. 9 m. 1 lo. 10 cars.
Samuel Garwood, *Supt* ... Williamstown, N. J.
Wilmington, Columbia & Augusta R. R. (*See W. & W.*)
Wilmington & No'n R. R. 4-8¾ g. 85 m. 16 lo. 148 c.
J. H. Thompson, *Supt. & P. A*..Coatesville, Pa.
George Rommel, *M. M*.........Coatesville, Pa
Alex. Maitland, *M. C. B*...... ..Coatesville, Pa.
Wilmington & Weldon; Northeastern; S. C. Central; Cheraw & Darlington; Cheraw & Salisbury; and Wilmington, Columbia & Augusta R. Rs.
5 g. 599 miles 70 locomotives 1,120 cars.
R. R. Bridgers, *Gen. Man*....Wilmington, N. C.
J. F. Divine, *Gen. Supt*.......Wilmington, N. C.
John Bisset, *M. M*...........Wilmington, N. C.
W. H. Day, *M. C. B*..............Florence, S. C.
C. R. Clowe, *M.C.B*. (W.& W.).Wilmington, N. C.
Winifrede R. R. 4-9 g. 5 m. 1 lo. 65 cars.
Theodore Wright, *Pres*........Philadelphia, Pa.
Windsor & Annapolis Ry. 4-8½ g. 130 m. 10 lo. 160 c.
P. Innes, *Gen. Man*..............Kentville, N. S.
Wm. Yould, *M. M* ....Kentville, N. S.
Wm. Grierson, *M. C. B*...........Kentville, N. S.
Wisconsin Central R. R. 4-8½ g. 480 m. 49 lo. 1,661 c.
F. N. Finney, *Gen. Man*.........Milwaukee, Wis.
E. K. Howes, *Pur. Agt*........Milwaukee, Wis.
W. A. Short, *Supt. M.P.& M*...Stevens Pt., Wis.
Mil. & E'n Divs.: A. A. Allen, *S*..Milwaukee, Wis.
Wisconsin, Iowa & Nebraska.
G. C. McMichael, *Supt*.......Marshalltown, Ia.
Wis., Minn. & S. M. & N. Div.:
W. E. Carroll, *Supt*.. ......Stevens Point, Wis.
Wisconsin & Michigan R. R. (*See Mil. & North'n.*)
Wisconsin & Minnesota R. R. (*See Wis. Cen.*)
Wood River Branch R. R. 4-8½ g. 6 m. 2 lo. 3 cars.
L. M. Barber, *Supt*...........Hope Valley, R. I.
Woodstock R. R. 4-8½ g. 14 m. 1 lo. 3 cars.
J. G. Porter, *Supt*................Woodstock, Vt.
Worcester R. R. (Md.) (*See Del., Md. & Va.*)
Worcester & Nashua; and Nashua & Rochester R. Rs.
4-8½ g. 95 m. 20 lo. 523 cars.
C. S. Turner, *Pres. & G. Man*. Worcester, Mass.
G. W. Hurlburt, *Supt*.........Worcester, Mass.
John G. Brady, *M. M. & C. B*. Worcester, Mass
Worcester & Shrewsbury R. R. 3 g. 3 m. 3 lo. 9 c.
J. J. Coburn, *Supt*......... ....Worcester, Mass.
G. E. Hapgood, *Pur. Agt*....Worcester, Mass.
Chas. Cleveland, *M. M* ....Worcester, Mass.
Worcester & Somerset R. R. (*See N.Y., Phil. & Nor.*)

Y

York & Peach Bottom Ry. 3 g. 40 m. 4 lo. 62 c.
S. M. Manifold, *Supt. & Pur. Agt*.....York, Pa.
S. J. Williams, *M. M*........... ......York, Pa.
E. K. Williams, *M. C. B*..... ....York, Pa.
Youghiogheny R. R. 4-9 g. 12 m.
Wm. Wilson, *Supt*.......... ....Irwin's, Pa